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STOMATITIS PUSTULOSA CONTAGOSIA OF THE HORSE.*

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[DURING the summer of 1876, several cases of a contagious disease appeared in the clinic of the Berlin Veterinary Institute, presenting phenomena resembling those of Variola, and chiefly affecting the mucous membranes and external integument. The peculiar character and rarity of the disease induced Ellenberger to investigate its nature and transmissibility by inoculating horses and other domesticated animals, as well as the human subject: also by placing healthy animals with those affected.

At a later period Eggeling had the opportunity of examining two other cases in the clinic, as well as a number of horses outside the clinic, which were declared by the inspecting veterinarians to be suffering, or suspected of suffering, from Glanders, but which, as Eggeling pointed out, were not affected with Glanders, but with this pox-like (*pockenähnlichen*) eruption.

The very fact that the district veterinarians (*Kreisthierarzte*)

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confounded it with Glanders, furnished a special reason for examining its contagious character, and publishing these observations.]

A dealer, B——, from E——, purchased twenty apparently healthy horses at a fair, and sent them to his home. Soon after he had bought them, he noticed that one of them was ill. The case presented symptoms of Fever, the appetite was diminished, saliva flowed from the mouth, a number of ulcerated sores were to be seen on the mucous membranes, and the submaxillary lymphatic glands were swollen. The next day other cases were discovered, which caused the owner to send for the district veterinarian, when the following symptoms were observed:—

A small quantity of a sticky greenish discharge flowed from the nostrils, and a quantity of a tenacious slimy mass from the mouth; the submaxillary lymph glands were swollen and slightly painful. On the mucous membrane of the mouth there were a number of round, or slightly angular ulcers, and some small nodules. Ulcers were also present on the superior lip and cheeks, varying in size from a fourpenny-piece to a shilling. In one case there was ulceration of the external nares; in another several nodules were found in the skin of the left fore-extremity, the corresponding prescapular glands being swollen.

From these symptoms, the district veterinary surgeon concluded that he had Glanders to deal with, and communicated the same to the veterinarian in charge.

Two days later, the ulcerations on the external surface of the lips and cheeks had increased in number, and in one horse a small ulcer had formed on the Schneiderian membrane, at the borders of the external nares.

The district, as well as the local veterinary surgeon, consequently condemned four horses as glandered, and the remainder as suspicious.

On second thoughts, however, the district veterinary surgeon doubted his diagnosis, from the fact that the disease spread among the animals so quickly; also because the phenomena in the mucous membrane were not quite in unison with those of Glanders. He was anxious, therefore, to examine the

horses once more, and that the referee, Eggeling, should be present at the examination, and also preside at the autopsy.

Most of the patients were from four to five years of age, and in good condition, showing some slight symptoms of general illness, but having on the whole a lively appearance; the hair was glossy and smooth. Bran-mashes were partaken of with a good appetite, but whilst eating hay a large quantity of saliva flowed from the angles of the mouth.

Some of the horses stood with depressed and stretched-out heads; the temperature of the external integument was warmer than natural, although the ears and extremities were cold. The pulse was 60 per minute, and full; the number of respirations was not above the physiological limit. Those horses which showed the worst symptoms ate their food eagerly, but evinced pain during prehension, masticated slowly, and saliva was secreted in abundance; they swallowed with difficulty, and a fine, frothy, chlorophyl-green saliva was discharged from the nasal cavities. When water was taken, large quantities returned through the nose. The Schneiderian membrane was of a rose-red colour. Both the submaxillary lymphatic glands were enlarged to the size of a hen's egg; they were hard, knotty, but were neither attached to the inferior maxillary bone nor to the external integument. On palpation the animal evinced but little pain. The mucous membrane of the mouth presented different appearances in different animals, according to the stage of the disease in which they were examined. By collecting and arranging the different phenomena of the malady in the several cases, its whole course could be very well seen.

In the first stage all that could be observed were slight indications of fever, but on the following day the oral mucous membrane was intensely reddened and hot, and by passing the hand over the same, small nodules could be felt in it.

One or two days later the nodules increased in size and number; the largest presenting either a white-looking summit, or the epithelium was removed and a small ulcerated surface was apparent.

Those which had been ill for four or five days had numerous ulcerations on the mucous membrane; the dental surface of

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the lips, the tip of the tongue, the *frænum linguæ* and inferior surface of the organ being especially affected.

About the sixth or eighth day the ulcerations began to heal.

The four horses which were condemned as glandered presented, in addition to the above phenomena, ulceration of the external integument—viz., on the superior lip, the cheeks, and anterior extremities. (See Fig. 18.)

Fig. 18.

The ulcerations of the skin in two of these cases were more numerous than we ever observed before or since, the prescapular glands being swollen in one case.

In a superficial examination, the malady might be easily mistaken for Glanders. In favour of this diagnosis, we had its contagious character, the feebleness of the discharge from the nostrils, the swelling of the submaxillary and prescapular glands, accompanied with the formation of ulcers in the external integument and Schneiderian membrane (the last in one instance only). Close examination and observation, however, brought to light important differences between this disease and Glanders.

The most striking deviation was the appearance of the ulcer itself, which presented quite a different character to that of Glanders. In these instances the ulcers were round, with sharply defined borders, varying in size from a fourpenny-piece to a shilling, the edges neither being serrated nor swollen, as they are in Glanders. The ulcerations were isolated, and independent of the course of the lymphatics. For instance, those on the lips and cheeks were irregularly distributed, and covered with a brownish-white scab projecting somewhat above the surrounding skin; when this was removed a white granular ulcerated surface presented itself. The ulcers were generally superficial, and rarely attained any depth—hardly ever reaching the subcutis. After the sixth day they readily healed.

The disease lasted, in individual cases, from twelve to fourteen days; and ran through a whole stable in about three weeks.

The disease in question differs, then, from Glanders, more particularly in the character and distribution of the ulcers; also in the absence of lymphatic inflammation; in the quickness with which the ulcers healed; in the non-appearance of ulcers in the Schneiderian membrane; further, in the rapid course of the disease, its short incubative period, and the quickness with which it spread from one animal to another. A careful examination would render a mistake in the diagnosis of these diseases scarcely possible.

That such a mistake was made in the instance we are recording was due, no doubt, to the veterinary surgeon's ignorance of the existence of the particular disease we are now considering. The malady has never been thoroughly described; the literature of this subject being very scanty. The few cases which have been hitherto recorded have been most imperfectly noticed. We will therefore endeavour to give a short and exact description of the course of the disease, as it presented itself to us in the patients at the veterinary school; and further add the results of our investigations concerning its transmissibility.

On May 22nd, 1876, Mr. M—— sent a horse to the clinic of the veterinary school, with the message that he had bought it from a dealer about ten days previously; soon after which the symptoms of fever appeared, followed by the formation of

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nodules and ulcers on the mucous membranes and external integument.

The examination yielded the following *status præsens* :— General health of the horse not disturbed; appetite normal; hair smooth and glossy; respiration and heart's action unaltered; external temperature equable; internal temperature taken at rectum 37·7°C., etc. During mastication quantities of saliva flowed from the mouth; whilst drinking the water streamed back through the nostrils; the submaxillary glands were a little swollen and painful; the Schneiderian membrane was slightly injected and moist. In the labial mucous membrane were numerous firm nodules, varying in size from a millet-seed to a pea, and raised prominently above the surface of the reddened mucosa, with a smooth surface, round and sharply defined. These papulæ extended to the angles of the mouth, and even on to the buccal mucous membrane. There were a few nodules visible on the gums, but on the frænum, inferior surface of tongue, and lips, they were present in large quantities—so much so that in places small clusters were formed, which may be likened to small bunches of grapes. This aggregation, however, was only seen in one case.

Many of the nodules had lost their epithelial covering at their summits, and presented a small ulcerated surface—the nodule soon transforming itself into an ulcer having a yellowish-white appearance. The ulcer soon became encrusted, somewhat resembling a pus scab, and was sometimes mixed with a little blood. Microscopically examined, it was seen to consist of pus-corpuscles and epithelial cells, accompanied in many cases with red blood-corpuscles. Fungi and *Micrococci* were also present. On removing this crust, a red granulating surface was seen, which readily bled.

Several ulcers were found on the lips, more particularly at their borders; these were larger than those on the mucosa, and were already commencing to heal, being covered with an amber-coloured scab. On the breast and anterior extremities—in fact, on those parts on which the saliva is most likely to be thrown —several nodules about the size of a pea, and two ulcers about the size of a fourpenny-piece, were seen. On no other parts of the body could nodules or ulcers be found.

COURSE OF THE DISEASE.

The disease had a very rapid course. The small nodules enlarged, and on the next day the largest of them changed to ulcers of the above description, and after a few days they healed.

On May 25th the ulcers on the external surface of the lips were covered with a dry, firm, brownish scab. On the 26th most of the ulcers on the mucous membrane were healing, and the salivation decreasing.

27th.—Another set of small nodules was visible on the tip of the tongue; also some on the skin of the *labia superioris.*

29th.—Most of the ulcers in the mouth and on the external part of the lip had healed, a few small nodules being left on the tongue, lips, breast, and neck. The horse was removed from the infirmary to-day.

On May 23rd Mr. M—— sent a second horse (which had been standing next to the one previously affected) to the infirmary; and on the 24th he sent a third horse,—both suffering from the same malady.

In both cases the disease took much the same course, which we will here shortly describe.

Both horses had been feverish for several days, especially the morning before they were brought to the clinic. When first examined, but little fever or other disturbance could be detected. The conjunctival and Schneiderian membranes were of a uniform rose-red colour; the mucous membrane of the mouth was intensely red, very hot, and covered by a tenacious secretion. The salivary secretion was much increased.

The same kind of nodules that were present in the first case, although fewer in number, were seen on the mucous membrane of the lips and cheeks, and more especially on that of the *frænum linguæ* and its surroundings. Ulceration had not yet taken place. Neither nodules nor ulcers could be detected in the external integument. The submaxillary glands were exceedingly swollen.

May 25th.—Many fresh nodules had made their appearance; the oldest and largest, especially those on the dental surface of the lips, were transformed into ulcers.

The nodules and ulcerations multiplied up to May 27th,

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during which time the partaking of food became more difficult, accompanied with an increase in the salivary secretion. A large nodule, the size of a bean, was present on the outer surface of the upper lip; this on the following day had a reddish-yellow summit. On this day (May 28th) the ulcerations were most marked; the oldest of them were already healing, and beginning to scab over.

29th.—From this day only isolated nodules were visible. The ulcers healed in a few days, and the nodules on the upper lip lost their epidermal covering and presented a vascular surface.

31st.—The animals were discharged from the clinic, only a few ulcers and a few slightly reddened nodules the size of millet-seeds remaining. The disease, therefore, had nearly run its full course in eight days.

The fact that all three horses contracted the disease quickly, one after the other in the same stable, led us to suppose that the affection was either contagious, or that the three horses had been simultaneously exposed to the same cause. In favour of its contagiousness was the fact that the first horse attacked was that newly-purchased; the one that stood next this in the stable being next affected, and that farthest removed being the last. The inference, therefore, was that the last two horses were infected by that recently bought. In order to prove its contagiousness, the following experiments were undertaken. Before we describe them, however, we may mention that two other patients suffering from this disease were received into the clinic—one in August 1876, the other in April 1877. Merely casual cases like these could not, however, throw any light upon their real origin. Their phenomena and course resembled that above described; the only difference being that in the April case small vesicles were seen on several of the papulæ, which were not observed in any other patient.

Experiments relating to its Transmissibility.

These were carried out at three different times.

1st. Inoculation from the horses infected in May, and further inoculations of healthy horses from those which had been thus inoculated, lasting until the commencement of August.

2nd. Inoculations from the patient which was taken ill in August 1876; and

3rd. From that which was under treatment in April 1877.

The principal inoculations were performed on five men, sixteen horses, fourteen cows and calves, one goat, three pigs, four sheep, two dogs, and one rabbit.

Four men and a number of horses took the disease by natural contagion, independently of experimental inoculation.

In speaking of the experiments, we shall take a few single cases for exact description, and only point out the positive and negative results of the remainder.

I. HORSES.

May 22nd.—A seven-months-old foal was inoculated on the dental surface of the lip, on the left ear, and on the internal surface of the left fore-leg, by scarifying the skin and then rubbing the lymph over it. [The other inoculations were either performed by the same method, or by means of a needle.]

24th.—On the parts inoculated nodules appeared, varying in size from a millet to a lentil seed, and firm to the touch, the mucous membrane of the lips being reddened.

25th.—The nodules had increased in number and extended to the cheeks and tongue; those which first made their appearance had increased in size. The inoculation wounds had a yellow base, with broad raised borders; those on the external integument were swollen, hard and firm.

26th.—A nodule at the angle of the mouth had a yellow acuminated summit; others were denuded of their epithelial covering, ulceration being already present. On the ear small, firm, hard, sharply-defined round nodules seated in the cutis could be felt.

27th.—New nodules had formed, and those which previously existed were enlarged; the ulcers were larger, and others had made their appearance. There were also some small, round and deep ulcers on the end of the tongue, about the size of a lentil-seed. (See Fig. 19.)

The nodules on the ear were larger, and the scarification wounds on the limb had suppurated.

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28th.—The ulcers continued to increase in size, the wounds to suppurate, and numerous nodules were seen on the ear. Up to

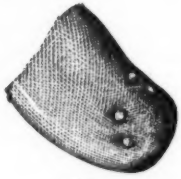

FIG. 19.

this date fresh nodules appeared daily in the mucous membrane and the skin.

29th.—The ulcers were deeper and larger, and most of them were circular in form; they were furnished with a yellowish-white incrustation, under which was a reddish surface which easily bled. Some of the ulcers were covered with a white

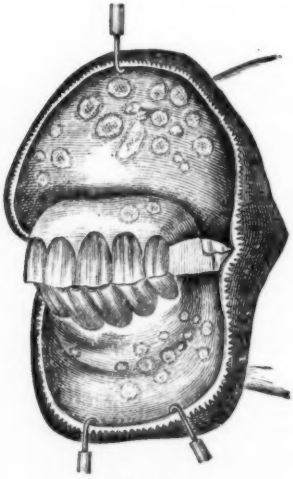

FIG. 20.

scab, and showed signs of granulation at their base. On this day it was possible to point out the various stages of ulceration

in every phase of its development. The submaxillary glands were also a little swollen. (See Fig. 20.)

30th.—Ulcers were more numerous and larger, some being confluent and forming large ulcerated surfaces. The nodules on the ear had increased in number, the oldest of them being about the size of a pea. Small nodules were also present on the anterior limbs. A further addition to the nodules on the mucous membrane was not perceptible, whilst those of the cutis had increased in number.

31st.—The ulcerations of the mucosa had extended. A hard nodule, about the size of a bean, had also formed in the cutis of the upper lip.

June 1st.—The nodules continued transforming themselves into ulcers. Those which had united added others; so that a large confluent ulcerated surface about the size of a shilling had formed, having an irregular shape, with angular, serrated and serpentine borders. The nodules on the ear and limbs had increased in size, those on the ear being partially ulcerated, others having a yellow summit.

2nd.—The ulcers on the mucosa had evidently begun to heal, most of them being covered with a scab; they had deep-red surfaces with reddish borders; some were still suppurating. The nodules on the upper lip had also commenced the suppurative process, and were forming ulcers.

3rd and 4th.—The process of healing proceeded favourably, red cicatrices being formed. The ulcers at the tip of the tongue had completely healed, although a slight defect in the mucosa was left. The ulcers in the skin had also commenced to heal.

5th and 6th.—Healing still continued. Those ulcers which had not healed were covered with soft firm scabs, with slightly elevated borders. The bases of the ulcers were of a greyish-red colour, and rather deep.

7th.—A great many ulcers had already healed.

8th, 9th and 10th.—Only the largest ulcers remained unhealed. (See Fig. 21.)

12th.—All the ulcers were healed, and the disease ceased.

On this experiment we may remark that a more plentiful

eruption took place in this case than in the others, and that the disease took a longer course than in them; for in those the processes had ended after the eighth, or at most the twelfth day, whereas in this case new nodules formed after the eighth day, and we cannot say the disease had completely ceased until the twenty-first day.

In no other case, whether the patient had the disease artificially or naturally, did the ulceration take such a confluent form,

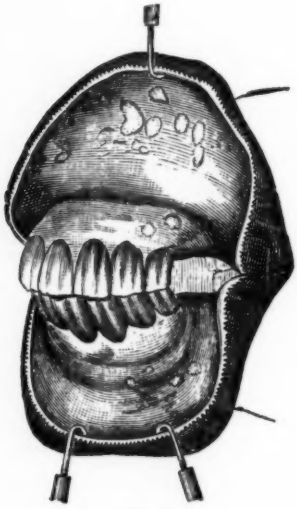

FIG. 21.

and present such large ulcerated sores as in this. It is true that two or three small ulcers became confluent in one instance; but they never formed such large ulcerated surfaces.

On May 30th we placed a healthy foal with that which had been inoculated, and another foal was also inoculated on the vaginal mucous membrane. The point of inoculation became reddened and a little swollen, but all this subsided by June 4th—thus giving a negative result to the experiment.

The healthy foal which was placed with the inoculated one

gave evidence of the formation of nodules on the mucous membrane of the mouth on May 31st, and later on they appeared on the skin of the lips. The disease ran the same course as that described above, in the case of the horse belonging to Mr. M—— in the veterinary school clinic. On June 10th all the phenomena of the disease had disappeared; so we may count in this case eleven days as the duration of the disease from first to last, or from infection to cure.

On May 31st we placed another horse with the last-mentioned foal. On June 2nd we perceived the formation of nodules on the mucosa. At a later period two other nodules formed on the external skin of the lip. On June 12th the disease may be said to have terminated, making the duration in this case ten days.

On June 7th another horse was inoculated from the foal which was first inoculated, but without result. The same horse was inoculated twice after this from other diseased horses, but always with negative results. Other horses, however, which were inoculated with the same lymph, became affected. After some time had elapsed we again inoculated the four foals which had all passed through the stages of the disease before, but they did not become infected a second time, although one showed three small nodules, which disappeared again after a few days without forming ulcers.

Besides these, there were a number of horses inoculated with lymph taken from those affected in August 1876 and April 1877, and these passed through all the stages of the disease. Most cases gave positive, very few negative results. The course of the disease was similar to that above described, the duration ranging from eight to twelve days. Two horses were inoculated with lymph taken from the ulcers of two previously inoculated calves. These horses became ill in the same manner as the others. From these horses, which had been secondarily inoculated from calves, other cattle were again inoculated, and with success in all but one instance.

We may mention that the horses which were inoculated from those taken ill in August 1876 and April 1877, were inoculated a second time, but no disease followed. A few small nodules

formed in one instance only, which soon disappeared again, without attaining their usual size and forming ulcers.

Inoculations on the skin at the fetlock, etc., were less successful. The disease is most easily produced by introducing the lymph upon or into a mucous surface.

II. RUMINANTS.

(*a*) *Cattle.*

May 24th.—A calf was inoculated on the vulva by rubbing the lymph on the scarified surface. No symptoms of the disease were perceived up to the 30th, on which day the inoculation was repeated.

June 1st.—Small nodules were felt in the vaginal mucous membrane, which on the 2nd changed to superficial ulcers covered with a purulent matter. Other small nodules were forming on the inferior and superior walls of the vagina, around the ulcers.

3rd.—The three ulcers which first formed were distinctly larger, about the size of a pea, circular, and presented a similar appearance to those which were seen on the mucosa of the oral cavity of the horse. (See Fig. 22.) Some fresh nodules and small ulcers had also formed.

4th.—The larger ulcers had commenced the process of healing, and the smaller ones had enlarged. The inoculated point on the external skin of the vulva reddened, and formed a hard, firm swollen nodule.

5th.—Some of the ulcers had already healed, and others had commenced to heal. We could detect no cicatrices on the places where the ulcers had been.

6th.—Entire convalescence, with the exception of the presence of two ulcers. All the places of inoculation were red, and covered with brownish scabs, and a swelling about the size of a bean had formed in their vicinity.

7th.—One ulcer remained. The swelling at the points of inoculation had decreased, as had also their redness.

8th.—The vaginal mucous membrane had quite recovered its normal condition. The ulcers had disappeared, without leaving

any marks of their presence. The duration of the disease was about eight days.

A number of calves were shortly afterwards inoculated on the vulva. The disease ran much the same course as above described, although it was not so rapid in all cases; the ulcers being larger and deeper, leaving scars after healing.

June 3rd.—A calf was inoculated with lymph taken from a pustule on an infected man. The calf was daily examined up

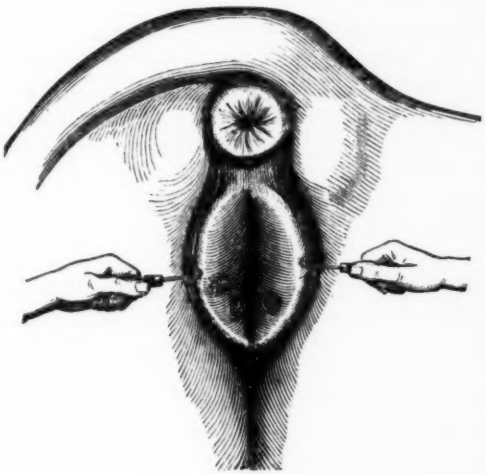

FIG. 22.

to the 9th, but no signs of the disease could be detected; therefore it was again inoculated with lymph from an inoculated horse.

10th.—Elevations about the size of rice-grains were perceived lying in a heap as large as a half-crown piece; the mucous membrane was intensely reddened. There were also a number of irregularly distributed nodules present.

11th.—The nodules were intensely red, and enlarged to the size of peas. On one side of the mucous membrane there appeared a large oval ulcer about one centimetre long and half a centimetre broad, having a greyish-yellow base, the borders

being swollen and anæmic, and the periphery and neighbourhood of a red colour. [*Query.*—May this not have been the result of the first inoculation?]

13th.—The ulcer was flattened and larger, its borders being about the same size, but red, and the base of a white colour. Opposite this ulcer four new ones had formed; they were of a round shape, about the size of peas, lying close together; in their centres a small red point, having a greyish-white ring around it, was seen. Their borders were neither swollen nor reddened.

14th.—The first large ulcer was covered by a scab. Two of the others were quite flat, and of a red colour.

16th.—Several ulcers had commenced to heal; they were flat, and covered with a yellowish-brown scab.

21st.—The small ulcers had completely healed: but the larger one, which formed first, had a moist centre, though its borders had dried.

23rd.—This ulcer had also completely scabbed over.

The duration of this case was thirteen days, from the first appearance of nodules until the complete healing of the ulcers.

A further description of cases is scarcely necessary. The course and duration of the disease can evidently be seen from the above two cases; but of course slight deviations occurred in individual instances: for example, the tumefaction of the vulva and catarrhal inflammation of the whole vaginal mucosa was more extensive in some than in others, etc.

Besides the inoculations from horses, we also inoculated from cows to cows, and, as a rule, with positive results.

Besides inoculation *per vulva*, saliva was taken from diseased horses and rubbed in the mouths of cattle; but with negative results. Further, inoculations were performed on the perinæum and scrotum. On the latter nodules formed; but distinct ulcers could not be said to occur. The crust formed in one night upon the nodules, after which they gradually disappeared.

(*b*) *Sheep and Goats.*

May 23rd.—The kid of a goat was scarified on the superior and inferior lip, and a sheep on the same places, as well as on the ear, and the lymph rubbed in.

26th.—The wounds of the kid were somewhat reddened.

28th.—The wound on the ear of the sheep (which was rubbed with the lymph a second time on May 25th), was somewhat swollen ; it suppurated, and distinct hard nodules were present in the swellings.

29th.—The nodules continued to increase in size. The sheep was again inoculated on the external surface of the ear.

30th.—Nodules smaller, and covered with crusts.

The nodules gradually disappeared, so that on June 2nd nothing more could be seen. The inoculation wounds had also crusted over. The inoculation on the mucous membrane of the mouth remained healthy. The same result was obtained with other sheep—viz., small nodules appeared on their ears, but no infection took place from the mouth. The goat was killed on May 27th, leaving it doubtful whether the inoculation was successful or not.

Besides these inoculations, saliva was taken from diseased horses, and rubbed into the mouths of sheep, but infection was not produced.

III. SWINE.

May 23rd.—A pig's ear was scarified on the external surface, and the secretion from the ulcers of Mr. M——'s horses was rubbed in the wounds. Saliva from horses which had ulcers in their mouths was also placed in the mouth of the pig.

June 1st.—A hard firm swelling appeared around the scarifications. The wounds themselves were moist, and secreted a serous and slightly yellow fluid.

6th.—The swelling was not so intense, and the wounds were covered with crusts, either moist or dry. The wounds healed in a day or two. Two other pigs were inoculated on the perinæum and superior lip, but with a negative result.

IV. DOGS.

Inoculation was performed on two dogs, but was not followed by distinct infection. Two miliary nodules became apparent, but soon disappeared again, without the formation of ulcers.

V. RABBITS.

In the rabbit, which was inoculated on both ears, no phenomena occurred which could be said to have anything in common with the disease.

VI. THE HUMAN SUBJECT.

(*a*) *Inoculation.*

May 29th, 1876.—Mr. Hänsel (student) inoculated himself upon the left upper arm with lymph taken from the foal which was inoculated on May 22nd.

June 1st.—The spot was red, and itched slightly.

2nd.—The redness increased, and the itching became quite unpleasant.

3rd.—The redness was not so marked, but more extended in its circumference. The parts were somewhat swollen, and a hard firm nodule had formed. At this stage the itching was most intense. The nodule was partially covered by the crust of the scarification wound, which had begun to heal.

4th.—The nodule was hard, intensely red, and had a small greyish-white pustule at its summit. The itching was still very unpleasant. The remaining inoculation wounds had healed.

5th.—The pustule was somewhat enlarged.

6th.—The pustule began to dry. The swelling, however, continued, but the redness had diminished.

7th.—Swelling less; redness diminished in intensity, and the pustule nearly dried up. The itching, however, remained, although less irritating.

8th.—No change in the swelling or colour. The pustule had completely dried up.

9th.—The swelling and colour less than yesterday, and a yellow-brownish crust had formed on the dried pustule.

12th.—The redness still less. The crust began to loosen.

15th.—The crust had fallen off, and left a deep cicatrix.

The disease lasted fourteen days.

After this Mr. Broit inoculated himself with lymph from horses. The result was *nil.*

Then Messrs. Töpper, Mangelsdorf and Ehlers inoculated themselves on the upper arm with lymph from the ulcers on the vaginal mucous membrane of a calf. The wounds became

somewhat inflamed for the first few days, accompanied with slight itching, and then healed. Infection did not follow.

(*b*) *Accidental Infections.*

1. About three days before Mr. Hänsel inoculated himself, he injured the skin of his left hand, immediately above the nail of the thumb, with the inoculating needle; and while examining Mr. M——'s horse, the puncture became smeared with the discharge from the ulcers in the mouth.

After a few days a most unpleasant and painful itching commenced in the part. It swelled up and became reddened, and the axillary glands of the arm began to tumefy, accompanied with Lymphangitis. The inflamed lymphatics could be plainly seen as red cords running from the wrist up the arm. The next day the swelling and redness increased; the itching was intense, and caused many sleepless nights. A small vesicle formed on the swelling, which on June 3rd was as large as a pea, and when opened a clear watery serum flowed from it. A calf (as above stated) was inoculated with this.

The swelling of the lymphatics increased after the (subsequent) inoculation of the arm. This inoculation took place before we were aware of the previous accidental infection; and the symptoms of this, therefore, appeared first, while the effects of the inoculation were superinduced on them.

June 8th.—The lymphatic tumefaction had disappeared. The redness and swelling at the point of inoculation on the finger remained after the vesicle had ruptured, and a clear fluid continued to escape from it up to June 5th. The redness and swelling had completely disappeared on June 8th. The deep pit which remained was filled with a yellow-brownish crust. This gradually became loose, and fell off about June 13th, leaving a distinct cicatrix.

2. Dr. M—— had a small wound on a finger of his left hand, with which he often examined the horses. One evening he was suddenly seized with an insufferable itching in this wound, which lasted nearly the whole night. The phenomena and course of the disease were much the same as in Case 1, the lymphatic vessels and glands being swollen.

3. District Veterinary Surgeon E—— sent word to Eggeling, that in the night after he had examined the supposed glandered horses, a nodule formed on his first finger, and he feared he had inoculated himself with Glander virus.

A swelling the size of a bean appeared in the centre of the dorsal surface of the finger. It was intensely red in colour, itched, and was slightly painful. Above the dorsal surface of the left hand and lower arm, as far as the elbow, were several highly reddened lines (inflamed lymphatics). The axillary glands were also swollen and painful.

It took much the same course as Cases 1 and 2.

4. The groom of Horsedealer B——, who had the supposed glandered horses under his care, became sick, and had symptoms which left no doubt that he also had been infected by the saliva. Unfortunately, we can give no detailed description of this case from personal knowledge, and for the few following particulars we are indebted to the local veterinary surgeon.

The groom had symptoms of fever: well marked cold and hot shiverings, with loss of appetite. He had a burning hot sensation in the head; the face swelled; the mucous membrane of the mouth and nasal chambers was highly injected and sensitive; swallowing was difficult and painful, so that the man could only take liquid nourishment.

In the course of a few days several ulcers appeared in his mouth, after which the swelling of the face subsided.

The ulcers quickly healed, the groom being completely convalescent in twelve days.

5. A stableman of this Institute (Berlin School), who had the diseased horses under his charge, had a painful, itchy swelling on his hand, similar to those of the gentlemen in Cases 1, 2, and 3. The surgeon who was consulted suspected infection from the virus of Glanders. The further advancement of the disease, however, showed that it was the same as that in the above described cases.

These infections of the human subject were undoubtedly produced by the specific action of infectious matter from the ulcers. They could not be confounded with infection from septic matter. Such a case is described by District Veterinary Surgeon Schütt

in vol. xviii. of the magazine (p. 493), where he himself became infected through examining a horse suffering from a disease of the mouth (*Maulfäule*—"Foul-in-the-Mouth"), in which the mucous membrane was denuded of its epithelial covering, and the saliva had a most penetrating odour.

The phenomena and course of this septic infection were quite different from those we have described. Such infections as Schütt describes often present themselves in practice, and we simply wish to draw attention to the fact to avoid all misunderstanding on this head.

Concluding Observations.

From the foregoing experiments, we may affirm the disease under consideration to be contagious, and that it spreads by means of its contagious properties. Whether it can arise *de novo* we are not in a position to say. There is a fixed contagium, which is only reproduced by contact. The virus acts most readily on the mucous surfaces, especially on that of the mouth, and has less effect on the external skin. As a rule, infection only takes place when the contagious matter comes in contact with an abraded surface; but with horses simple contact with a healthy surface is sufficient. The principal medium of the virus is the saliva.

Different species of animals show great differences in their susceptibility to infection; the horse being most susceptible, cattle next, then the human subject, and lastly sheep and pigs. The susceptibility of the goat, dog and rabbit cannot be estimated from the few cases experimented upon by us. The individual disposition of different animals is also very variable—some individuals being proof against infection: for instance, two horses in the School were inoculated four times, but without becoming infected.

The virus seems to lose its potency after passing through the system of several animals. This is the reason why we could not extend our researches by inoculation to the extent we should have liked. From the scarcity of horses at our command, we were compelled to use cattle, and by degrees we found the lymph lost its infectious properties until it finally ceased alto-

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gether to take effect, and our stock of infecting matter was in this way exhausted.

Our investigations were not successful in revealing the real nature of the virus; therefore it must still remain an open question whether we had a "contagium vivum" to deal with or not.

The fungi which we found on microscopical examination should, in our opinion, be considered as purely accidental. We doubt their representing in any way the etiology of the disease. It appeared as though some chance fungus-germs had happened to alight on a favourable soil. The fungi did not represent the cause, *i.e.*, the contagium (as conveyer or producer) of the disease, but were of a purely casual and ordinary character.

By the aid of the microscope, fungus fibres or rods, having either a straight, wavy, or corkscrew form, could be seen over the surface of the ulcers.

They were arranged quite promiscuously with regard to one another, and formed an ordinary kind of fungous growth. We could not classify them more minutely, because they were such immature forms. No *septa* could be distinguished in the fibres, nor could any signs of fructification be detected. It must therefore remain undecided whether we had a high or a low form of fungus to deal with.

In several preparations, such as were taken from fresh ulcers (by cutting through them with a double knife), no fungi could be detected.

This, together with the circumstance that only young fungi were found, is, in our opinion, a conclusive proof that those which we did find were purely accidental. It is quite possible, however, that we may be in error, and we shall be quite ready to acknowledge our mistake at the instance of more competent and fully-informed colleagues. We can only give our view of the case as we found it.

However seductive may have been the prospect of discovering a new fungus and corresponding disease, the results of our objective examination only forced us back upon the position "*Nos ignoramus.*" We can give no information as regards the nature of the virus (*contagium*); neither can we say whether

it is possible for the disease to originate spontaneously; nor yet point out any causes beyond that of contagion which could contribute to its outbreak. Until the self-originating character of the malady is clearly proved, it follows that we can only consider it as purely contagious.

Having, then, so far demonstrated the contagious character of the disease in question, it remains to inquire more particularly into its exact nature.

We must class this disease with the Acute Exanthemata, and in particular with those having a pustulous form. A detailed description of it is not to be found in veterinary literature. If we peruse the various writings on Stomatitis (*Maulfäule*), Aphtha, etc., of the horse, it is true that the same kind of Exanthema appears to have been known to some authors, and was described as a form of Stomatitis; just as it and many similar diseases are so designated by practical veterinarians. But with this view of the case we are by no means satisfied.

The terms "Mouth Disease," "Foul-in-the-Mouth," etc., are understood to mean a disease of the mouth, accompanied by the formation of vesicles and inflammation of the mucous membrane. The inflammation of the mucosa and cutis, which we have above described, is not characterized by the formation of vesicles, but of nodules, which seldom have small vesicles at their summit, and more frequently pass directly into the suppurative process, and form small ulcers. Again, the inflammation in Aphtha is much more superficial than in the disease about which we have been writing.

The exanthematous inflammation observed by us was strictly confined to certain parts of the mucous membrane or cutis. The process was, in one case, confined to the papillary layer, being more superficial; at another time it attacked the whole thickness of the cutis; whilst in some other cases it extended to the subcutis and submucosa. The disease commenced with papillary inflammation; the papillæ swelled and became thicker and broader; round cells were developed, which aggregated in the form of a nodule in the *Stratum mucosum*. These round cells quickly multiplied; the papillæ were destroyed, and a small cavity containing pus formed under the elevated epithelial cells;

the inflammation at the same time extending itself both in width and depth. This cavity ruptured and discharged its contents, the defect in the papillary layer now being distinctly visible—the hollow cavity being surrounded by inflamed tissues which were infiltrated with round cells, resembling a pus-like mass, but which in reality consisted of morphological epithelium and pus cells. During the suppurative process, small granulations appeared at the base of the ulcers, which gradually filled them up, and eventually a crust formed. The epithelium first formed around the border, extending towards the centre ; the crust fell off, and the whole process was terminated. A cicatrix formed where the cavity was, which replaced the lost tissue. Of course, the process varied in different cases, according to the extent of the inflammation ; it being in some cases superficial, and in others attacking the subcutis and submucosa. The size of the cicatrix was also dependent upon the extent of the inflammation. The whole process ran its course in about twelve days.

From the above description (in which we have purposely omitted details, they having been previously given), it is clear that we are dealing with a disease of an acute pustulous and exanthematous nature.

First we have inflammation, with the formation of nodules ; then a pustule forms (a collection of pus under the epidermis, causing it to rise above the surrounding level), which breaks and forms an ulcer that quickly heals.

The exanthema is of a cutaneous character, the mucous membrane, and sometimes the skin, being covered with pavement epithelium. The favourite seat of the disease is the mucous membrane of the mouth. Whether it ever extends to the fauces we were not able to determine. We never observed the parts to be covered with cylindrical epithelium. The ulcers which appeared on the Schneiderian membrane were situated on the border of that membrane and the skin.

We have chosen the title " Stomatitis," because the disease is principally situated in the mucous membrane of the mouth ; the adjective " pustulosa " being added in order to determine its character more precisely, and to distinguish it from the other forms of Stomatitis. In medical literature, we find the various

forms of Stomatitis described by such names as "Pain in the Mouth" (*Maulweh*), "Mouth Complaint" (*Maulseuche?*), "Foul-in-the-Mouth" (*Maulfäule*), "Stomatitis Aphthosa," etc. Lemaire, for instance, observed a mouth disease (*Maulseuche*) in the horse, which was characterized by a superficial inflammation of the mucous membrane, and accompanied by the formation of vesicles. This, no doubt, was the true "Stomatitis Aphthosa," which is a very different disease from the "Stomatitis Pustulosa."

Another form of Stomatitis—"Mouth Disorder" (*Maulweh*)—has been frequently described in writings, and is well known in practice; it is that produced by partaking of pernicious foods, etc. The disease described by Obich (in the *Mittheilungen, etc., von Adam, Band* 12), as being the effect of eating *Aspera spina venti*, belongs to this category. It is also commonly known that the *Ustilago* fungus and its spores produce a most unpleasant disease of the mouth (*Maulweh*).

We read in veterinary medical literature that the horse is also subject to true Variola (Pox) in the mucous membrane of the mouth. Silvester announces that about three hundred horses became victims to Horse-pox (*Variola equina*), the seat of the disease being principally the mouth. This disease took a similar course, etc., to the pustulous inflammation of the mouth we have described. The two can be easily differentiated by the aid of the microscope. The nodules and pustules which were microscopically examined by us could not be confounded with those of Variola.

We have various other forms of Stomatitis, which could not possibly be mistaken for the pustulous form; therefore they need no comment from us.

On the other hand, certain forms have been described—such as *Impetigo labialis*, and Inflammation of the Follicles—which so closely resemble the pustulous Stomatitis, that it is doubtful whether the cases are not really the same, and the authors concerned have simply failed to indicate them appropriately. There is a paper published by Sondermann in the *Wochenschrift*, under the title of "Mouth Disease" (*Maulseuche*), which may be classed amongst these doubtful cases. It is true he mentions that the follicles were swollen; but since they were not microscopically

examined, it is quite possible he may have been mistaken, and that he took what we have described as nodules for enlarged follicles.

A true and accurate description of *Stomatitis Pustulosa Contagiosa* is not to be found in our literature.

We hope that the present observations may furnish practical veterinarians with an opportunity of communicating their experiences in the matter, so that we may become acquainted with the comparative frequency, etc., of the disease in question. Any special medical treatment, as may be seen from our description, is wholly unnecessary. Nor does catarrh of the Schneiderian membrane and inflammation of the pharyngeal mucosa require any special treatment.

We hope the above remarks will be interesting to the practitioner. We are well aware of the defective and incomplete character of our work in the matter, but we have been endeavouring for the last twelve months to discover an animal suffering from the malady, in order to complete our investigations and enlarge our experience; unfortunately, however, we have not been successful in our inquiries. We have not, therefore, been in a position to make any further experiments or observations on the subject.

BURSAUTTEE.

BY J. J. MEYRICK, M.R.C.V.S., ASSISTANT SUPERINTENDENT OF STUDS, PUNJĀB.

I HEREWITH send you a specimen of the substance called "kunkur," which is found in all Bursauttee sores—in the hope that if examined by a practised microscopist, and perhaps analysed, some clue may be found to the real nature of Bursauttee.

Five or six years ago, when working in the old Bengal studs, I forwarded a considerable quantity of this substance to the Government Chemical Examiner at Roorkee, who promised to analyse it for me.

After a few months, he wrote saying that he had been unable to discover its composition.

The name was no doubt given owing to its resemblance to the small roughly rounded pieces of which the stratum called "kunkur" is composed. It is a common earth in many parts of India, and formed of a mixture of clay and lime in various proportions.

Although the term Bursauttee originated from the supposition that it is a disease of the rainy season—it almost invariably breaks out, according to my experience, in the dry hot weather, some weeks, or even months, before the rains commence.

There is no doubt but that previously healthy horses often become affected, owing to something deposited by flies upon wounds, or parts of the body covered by mucous membrane or very thin skin, such as the inner edges of the prepuce or orifice of the urethra.

I have seen pieces of "kunkur" the size of peas picked from the membrane inside the eyelids of colts whose eye fringes, being out of repair, did not keep off flies,—an ulcer or sore not having had time to form.

In some of the late Bengal studs, every wound, even the smallest scratch, was smeared daily with a thick mixture of sulphur and oil, upon which no flies will settle.

I have carried out this practice for many years, and have never known a wound so treated to assume a bursauttic character.

When the "kunkur" has once grown, unless it is completely burnt out with caustic, fresh deposits of the same kind are found under the skin all round,—perhaps owing to some of the diseased matter being carried from the original centre by the absorbents.

Many of these deposits being no larger than pins' points, it is very difficult to be sure that all are eradicated; and if any remain they will probably increase in size, and cause the sore to burst out afresh during the next hot season.

This is the reason why Bursauttee is of so obstinate a character.

When it has existed for a considerable time, the poison appears to be carried to other parts of the body. Sores will then come in places where the skin is thick, and where there have been no previous wounds.

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A Mr. Burke—one of the overseers in the Bengal studs, who by many years' practice, and studying all the best books procurable, had become extremely clever in veterinary surgery—once assured me that in examining horses killed for incurable Bursauttee, he had sometimes found "kunkur" in both the liver and lungs.

Until lately, I never had an opportunity of making a *post-mortem* examination of a horse that had been long affected. The piece of "kunkur" I now send was taken from a Government stallion—a high-caste Arab fifteen years old, which had become unfit to breed from, owing to masses of Bursauttee sores having formed upon the whole inside of the sheath and in the body of the penis. On his being destroyed, I found pieces of "kunkur," some as large as a pea or small bean, deposited under the whole pleural surface of both lungs. Many were fully a quarter of an inch deep in the parenchyma.

Strange to say, I found two or three pieces of "kunkur" on the lungs of another old Arab, destroyed at the same time, who had never shown any signs of Bursauttee.

He had become unfit for covering owing to large melanotic tumours all over the inner surface of the sheath, as well as in other parts of the body, internal and external. They were constantly bursting and forming running sores, through which possibly the Bursauttee poison may have been introduced.

Under my microscope, "kunkur" appears to be formed of cells mixed with fibrinous deposits, and sometimes crystals resembling uric acid and oxalate of lime—some portions looking like tubercle. I am, however, not a sufficiently experienced microscopist to be able to speak with certainty, or to form any decided opinion about it. If tubercle, one would expect it to occasionally cause the formation of abscesses in lungs or liver; but there is, I believe, no record of such having ever been known to occur.

In the two horses above referred to, there were not the slightest traces of pus, or even of irritation, in the parts of the lungs surrounding the lumps of "kunkur."

[We thank Mr. Meyrick for his communication, and for the

specimens of "kunkur." The latter shall be submitted to careful examination, and the result published.

With reference to Bursauttee, we may mention that Mr. Smith, M.R.C.V.S., Royal Artillery at Lucknow, has been studying it most carefully; and in a letter recently received from him, he states, with regard to his treatment in the early stages, that this is simple and certain of success. He, first of all, applies around the edges of the ulcer a strong blister, which covers the whole of the indurated part. This has the effect of frequently entirely softening it; and the result is that the fibrous matter and cells which he describes are completely forced through the ulcerated surface. This is cauterized with nitrate of silver; often a second and third blister is necessary to complete the softening process, when the ulcer is converted into a simple healthy wound, which heals in a normal manner. Mr. Smith has not had an opportunity of trying this treatment in neglected chronic cases.]

DEFORMITY IN THE MOUTH OF A HORSE.

BY J. A. NUNN, M.R.C.V.S., ROYAL ARTILLERY, JULLUNDUR, PUNJÂB, INDIA.

I SEND the following account of a deformity in the mouth of a horse, which may perhaps be interesting to some readers of the *Veterinary Journal.*

On the 10th August, 1878, I was requested to examine a five-year-old horse belonging to the cavalry of H.H. the Rajah of Kaparthala, the mouth of which presented the appearance delineated in the enclosed sketch. The two central incisor teeth in the lower jaw occupied the place of the central lateral, the central lateral the place of the lateral, and the lateral were quite close up to the tusk, which was in its natural position. In the gap between the central teeth the buccal membrane had grown out into the form of a hard round protuberance, the size of a small hen's egg. This prevented the animal gathering up his food with his lips, and he presented a very emaciated appearance. I removed the growth, and during the operation the horse evinced little pain, and there was but slight hæmorrhage.

I had not a microscope to make an examination, but it appeared to be cartilaginous, and under the knife felt gritty.

As far as I was able to learn, the animal was bought some time in the autumn of 1877, in the Rawal Pindi district, and the tumour was said to be only of three weeks' growth. This statement, however, does not correspond with either the appearance of the teeth or tumour, and I should imagine that it is much older; the natives about the animal are afraid to say so, from fear lest they should be blamed for buying an unsound horse.

On August 20th—the present time—the case is doing well; the wound has nearly healed, and the animal is able to feed.

I enclose a rough sketch, which will convey a clearer notion than I can describe.

FIG. 23.

[Anomalies in the position or number of the incisor teeth of the horse do not appear to be very common—at least, this is our experience. In September last, a remount joined the Second Life Guards, which had been twice returned to the breeder—on veterinary certificate, we were informed—as a four-year-old, the owner having sold him as a five-year-old animal. The horse is five-and-a-half years of age, but the corner incisors are absent—congenitally. There never have been deciduous corner incisors—there is not the slightest trace of them. The central and lateral incisors, above and below, exhibit indications of the age

we have mentioned, and the canine teeth are fully developed. The general appearance of the horse is also additional evidence of its real age. The breeder was compelled to sell the animal as a trooper, at a much lower price than he had previously received for it, as he believed it would remain a four-year-old, so far as its dentition was concerned.]

EXTRAVASATION OF BLOOD AND ITS RESULTS.

BY T. WALLEY, PRINCIPAL, EDINBURGH VETERINARY COLLEGE.

CASE NO. I.

Illustrative of Extensive Bruising of Tissue and Extravasation, followed by Absorption of Extravasate and Perfect Restoration of the Injured Parts.

Subject.—A valuable and very active brown cart-horse, the property of a coal merchant.

History.—The animal was standing at a railway siding, yoked to a cart containing two tons of coal. He became frightened by a passing engine, and, curiously enough, dashed straight at it; the lower part of the neck, on the left side, and the shoulder, coming into violent contact with some parts of the engine, the result being that the animal was knocked off his legs and thrown violently backwards. He, nevertheless, regained his feet; and a second, and also a third time, went through the same performance.

The horse was immediately released from the cart, and walked a distance of a mile and a half to the establishment of the late Mr. Stanley, of Birmingham. On his arrival he was much excited, moved very stiffly, and the whole of his left shoulder and neck presented a puffy appearance, was greatly swollen, resilient and painful to the touch, and battered almost to a pulp. The excitement rapidly gave place to depression, and the swelling increased to enormous proportions.

Treatment.—Administration of internal stimulants, with the application, persistently for forty-eight hours, of hot fomentations with occasional inunction of stimulating liniment to the injured parts.

Recovery was rapid, and no secondary results followed.

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CASE NO. III.

Illustrative of Diffuse Hæmorrhage, Coagulation of Extravasate, Subsequent Disintegration, Removal by Excision.—Recovery.

Subject.—A valuable greyhound dog.

History.—A few days prior to the date on which I saw him, violent attempts had been made by the attendant to remove a supposed bone from the pharynx. The swelling caused by the extravasation, which took place immediately after these attempts, involved the whole of the head and upper part of the neck. The head was of an enormous size, and shapeless; the nasal cavities almost obliterated; the Schneiderial, buccal, and conjunctival membranes ecchymosed; the skin of the lips was livid, and there was fluctuation over the posterior part of the head, extending a considerable distance along the neck.

Treatment, for the first three or four days after receipt of the injury, consisted in hot fomentations to the parts, with the administration of raw eggs, port wine, and ferri perchlorida. This had the effect of greatly reducing the swelling and removing the ecchymosis of the face. The appearance of the head was that of one having a chignon attached to the poll. After waiting a day or two, and no signs of further reduction or dispersal of the tumour being shown, I made a free incision, broke down the clots and carefully removed them, nearly emptying the sac; the blood was undergoing degenerative changes, had a slightly sour odour and a grumous appearance, and was of a damson hue.

The sac was thoroughly irrigated with warm water, and subsequently washed out with weak carbolic solution. No hæmorrhage or other untoward circumstance occurred, except that in the course of a few days the sac refilled. A larger incision was then made into it, the contents completely evacuated, and the same treatment adopted as at first. A little suppuration followed, but the dog was discharged in a few days, quite well.

Cases—in Ponies—illustrative of the Effects of Extravasation, combined with Bad Hygienic Conditions and Debilitating Influences.

Owing to an accident which occurred to the SS. *Fifeshire* in the outward voyage, the shipment of two cargoes of Iceland

ponies in 1875 was delayed to the period of the equinoctial gales. In consequence of extensive volcanic eruption, much destruction of vegetable life had taken place; hence the animals could not be left in Iceland for the winter. Moreover, they had been collected at the port of embarkation (Reijkarik) to the number of 600.

On Tuesday, September 7th, the SS. *Queen* left Reijkarik with about 300 ponies. At four a.m. on Wednesday a gale sprang up, and continued unintermittingly for a period of forty-eight hours; the vessel arriving at Granton at two a.m. on Sunday. During the continuance of the gale the hatches had to be closed, as the sea was constantly sweeping over the vessel and drenching her from stem to stern; consequently the crew were quite unable to attend to the ponies or assist them in any way, as they had great difficulty in preventing themselves from being washed overboard. The vessel, too, was a bad sailor, as instead of rising with the waves she dashed into them, thus making matters worse.

The violent manner in which the ponies were tossed about may be imagined, when I say that in one instance a pony was thrown across and balanced upon the railing of the ship by one sea and thrown back on to the deck by the next.

Before the vessel arrived at Granton forty ponies had been thrown overboard, dead—from trampling, bruising, and suffocation, and from acute congestion of the lungs.

Strange as it may at first sight appear, the mortality was less in the holds than between-decks; but it is easily accounted for when we consider that those animals which were between-decks were exposed to the full effects of the effluvia from their own excretions and of those in the hold. The disastrous effects of the gale were intensified by the somewhat weak condition into which the animals had been brought by their journey over the mountains to the shore; by the want of food and water during the forty-eight hours; by the long exposure to a contaminated and poisonous atmosphere; and by some of the animals rushing into the sea, immediately on being landed, and drinking large quantities of sea-water.

Many of the animals were scarcely able to walk to the shed—

a distance of about two hundred yards. My attention was directed to them on Monday the 13th, by which time two or three more had succumbed, and several others were in a hopeless state.

On examining those which were suffering most acutely, I found them frightfully bruised—with extensive blood extravasation—about the head, root of tail, elbows, hocks, knees, fetlocks, quarters and sides. In some cases the whole of the skin from the coronet to the knee was undermined by pus as the result of degeneration of the extravasate.

In every case—as may be easily imagined, when the treatment to which the animals had been subjected is considered—the pus was extremely fœtid, and in the worst cases blood-poisoning rapidly took place; the symptoms of Septicæmia—viz., extreme fever, colliquative fœtid diarrhœa odour, fœtid breath and livid or dirty yellowish-red coloured mucous membranes, were well developed. Several animals also succumbed to secondary Septic Pneumonia and septic pulmonary abscesses.

The death from this cause of one animal which had only shown symptoms of lameness in one fore-foot, and in which I discovered sub-solar suppuration to a large extent, led me to make a careful examination of the feet of all those which evinced the slightest sign of lameness; when I found in almost every instance sub-solar and laminal extravasation. Before discovering this I had observed that in several feet a vesicle had formed at the coronet containing a large quantity of sero-sanguineous fluid, which, on being lanced, left a distinct separation between the horn and the skin. These vesicles I at first attributed to bruising of the coronet, but after poulticing for a day or two I was able to trace the separation along the whole length of the hoof to the toe.

The examination of the feet of the lame animals led to the discovery—first, of a circumferential ring of extravasated blood at the junction of the sole and crust, varying in width from $\frac{1}{16}$th of an inch to an inch, the horn on both sides of the ring being softened and of a yellow colour, from the infiltration of *liquor sanguinis* into its structure.

In some instances the extravasate had undergone no change;

in others it had degenerated into pus which had insinuated itself in various directions between the sensitive and insensible sole, laminæ, and frog, respectively, and had caused great destruction of the vascular tissues.

In other cases the suppuration had not extended past the original boundary of the circumferential ring, but when the horn was removed a groove or excavation running completely round from heel to heel was exposed. I have since seen similar cases in Russian and other animals, and I have no doubt that the extravasation was produced—firstly, by the long journey, barefooted, frequently over larva beds, before shipping; secondly, by the great stress put upon the toes in the endeavours of the animals to retain their foothold during the storm.

No deaths took place from secondary blood-poisoning from the pedal injuries after the extravasated blood and pus had been carefully removed. The treatment adopted was removal, so far as practicable, of every particle of separated horn and extravasate, exposure of all the injured tissues, wrapping up of the feet in carbolic pads, with hot fomentations where great tenderness was evinced. Subsequently, tar pads were substituted for the carbolic, and all went well.

Case illustrating the Effects of Extravasation into Bursæ.

Subject.—A bay cart-horse, five years old, having a globular pendulous swelling at the point of the right ulna.

I was asked to examine it in consultation with the attending V.S., Mr. Bailie, of Colinsburgh, and was told that it had been in existence for four years, but had gradually increased in size.

After examining it, I advised abscission, and immediately performed it.

The tumour weighed upwards of two pounds, had a dense cyst wall about an inch and a half thick; contained a large quantity of sero-sanguineous fluid, floating in which, and only slightly attached to the interior of the cyst by a delicate fibrous pedicle, was a mass of blood-corpuscles about the size of a hen's egg, held together by delicate fibrillated tissues, and presenting at various points small masses of bone crystals, with patches of recent hæmorrhage scattered over its surface.

Editorial.

THE TRAFFIC IN DISEASED MEAT.

We have repeatedly drawn attention to the fact that a large traffic is continually going on in the flesh of diseased animals, which is sold for human consumption; and there is only too much reason to apprehend that this traffic is on the increase. The greater value of animals whose flesh is used as food, and the consequent high price of this flesh, sufficiently account for the presence of diseased meat in the market. Veterinary surgeons, particularly those who practise in the country, well know that very few of these animals, and especially cows, are allowed to die in a natural way when sick, or are buried when dead. No matter what the malady may have been, the stage it had reached, or the condition of the animal, its carcase is almost certain to find its way to the butcher—usually one of a low class, whose living chiefly depends upon this traffic—and thence to the flesh stalls in poor localities. Not only does such meat find a market among the poorer classes, who are ready to buy it because of its cheapness, but there is evidence to show that at certain stations and in certain garrison towns, where the Army Commissariat does not kill and dress its own supply, the carcases of diseased beasts are consumed by Her Majesty's troops. A valued correspondent, whose large experience enables him to speak with confidence and authority on such a subject, in the last number of the *Veterinary Journal* asserts that "country practitioners could speak of scores of cases which, as soon as reported 'doubtful,' are handed over to the village cagmag butcher, to be dressed and sent to garrison towns." And he appears to assume that veterinary surgeons are helpless in the matter, for he says "they dare not remonstrate, as their very bread is at stake if they attempt to stay this traffic."

The owners of diseased animals—many of whom, one would imagine, would be above such transactions—seldom hesitate about dealing with these "cagmag" butchers; and from the small sums they receive for their beasts, they must surely feel that there must be something reprehensible in the business, even did not the secrecy displayed, and the severe punishment meted out to offenders when discovered, demonstrate the nefarious character of the proceedings.

We can have no idea of the extent to which the traffic in diseased flesh is carried. It is an indubitable fact that cattle, sheep and pigs are often attacked by maladies which are either very fatal, or the treatment of which is too troublesome or expensive. What becomes of the great majority of these creatures, we can only hazard a guess; our inquiries at knackeries and kennels lead us to believe that they are seldom sent there, and report has it that they are very seldom buried. We know that for certain diseases the veterinary surgeon is rarely called in, but instead of him the butcher's services are invoked. It would therefore appear that very many, if not nearly all the hopelessly sick animals of the species mentioned, furnish pabulum for mankind in some form or another. Some of these diseases may not render the flesh dangerous for consumption, though they may more or less impair its nutritive value; but

we have the clearest and most direct evidence that some other maladies, which are far from being uncommon, so alter the quality of the meat as to make it poisonous to those who partake of it or who chance to be inoculated with its fluid portions. The various forms of Anthrax, for instance, produce such changes in the flesh as to render it most pernicious to those handling or eating it; and we frequently read of butchers and others either suffering severely, or dying, through dressing the carcases of animals which had been sent to market as food.

Parturient or Puerperal Fever in ewes and cows is not a rare malady (we do not allude to the so-called Parturient Apoplexy, a different disorder, but with which it is usually confounded), and it generally receives more attention from the butcher than the veterinarian; yet the flesh of such animals is extremely dangerous to those who eat it, and we often read of numbers of people being made seriously unwell, or even perishing, through ingesting it. One of the most recent instances is recorded in the *Wochenschrift für Thierheilkunde und Viehzucht*, by Herr M. Albrecht, of Sonthofen, who communicates an interesting case of disease in men occasioned by their consumption of meat from the carcase of a cow that had been slaughtered on account of its suffering from Puerperal Fever. The members of two families, ten in number, all partook twice—on the evening of one day and the morning of the next—of some of the meat, which had been boiled for about an hour, and also of the liquor in which it had been cooked. On the second day seven of the ten were taken ill, the most prominent symptoms being a feeling of intense cold alternately with sensations of heat, sweats, severe headaches, absolute loss of appetite, accompanied by much thirst, nausea or actual vomiting, and subdued pain in the belly. The fæces evacuated were at first of semi-liquid consistence; afterwards sharp diarrhœa set in. Four days after, all the invalids had recovered without any medical assistance. It appears that the flesh of the animal had been given away by the owner on the second day after it was slaughtered. Most of it was at once treated with a mixture of saltpetre and common salt, and pressed down by heavy weights in a wooden tub. The parts eaten, as above detailed, had not been salted. Herr Albrecht undertook the examination of the preserved meat after it had been four days in the tub. He found it had become completely putrid, and gave out a most offensive odour. The juice of the muscular fibre swarmed with *Micrococci* and *Bacteria*, some of them in active motion. On inquiry it appeared that the cow had had no medicines administered which could have been capable of thus spoiling the flesh by absorption, nor had the animal been in contact with poisonous matters in any way whatever. In searching for the probable cause of the injurious action of the meat, Albrecht points out that Gscheidlen and Traube's investigations have established the fact that normal digestive fluid has the power of destroying *Bacteria*, and further that in this case the fungi had been subjected for a considerable time to boiling heat, which must have destroyed their own activity. He therefore thinks it probable that they were either the vehicles of some poisonous matters not destructible by a boiling heat, or that by setting up putrefaction of the constituents of

the flesh as in the process of fermentation, they engendered in it some similar poisonous matter. The present case is of more importance, as it appears to be the habit of Continental veterinarians to sanction the use of the flesh of animals suffering from Puerperal Fever as food for man; and Albrecht states that this has always been his own practice, and that he has never but once seen any ill effect follow the consumption of such flesh. In that case, as in the present instance, the diseased animal was only killed at a much later stage of the fever than usual, and the carcase had not been sufficiently drained of blood.

Other septic maladies, as well as those of a pyæmic nature, to which food-yielding animals are liable, render their flesh pernicious; and yet we rarely or never hear of their carcases being considered unfit for the butcher's stall. Tubercular diseases are also common, and the flesh and milk of creatures suffering from them must be looked upon with the gravest suspicion, yet these products are seldom rejected as food.

We may be told that the process of cooking destroys any poisonous organic agents which flesh may contain, and thus averts injury. But flesh, especially among the poorer classes, and particularly when in large pieces, is seldom so thoroughly cooked that safety can be assured; and when we remember this fact, and also that some of the products of diseased animals are consumed in a raw state, or nearly so, we can arrive at some notion of the risk that is daily incurred, and the amount of sickness that such food must occasion. How many of the cases of fever, of the septic and enteric disorders which are so prevalent among our urban and rural populations, and so largely augment our bills of mortality, are due to the traffic in diseased meat, we know not; but when we come to consider the causes likely to give rise to them, we cannot hesitate to ascribe a pretty considerable share to such food. As we become better acquainted with the etiology of these human plagues, we shall in all likelihood be more justified in blaming diseased meat as an active agent in their production. But even with our present knowledge, we are in a position to point out that such a traffic as that we have alluded to should not be for a moment tolerated, and that the most severe and summary punishment should await the transgressors of the sanitary laws for its suppression. As matters at present stand, however, it is extremely difficult, if not quite impossible, to check this dangerous trade, and it is only at wide intervals that an offender is discovered. Until every town and city has its public abattoir, and every abattoir and slaughterhouse is under the most careful veterinary supervision, and the public will only buy meat issued from such places, there can be no guarantee against the evil we have so often and so energetically exposed. It is a sad reflection that though we boast of a progressive civilization, a higher respect for sanitary science, and a greater respect for human life and health, we are yet no further advanced in the protection of the public from the ill effects of diseased meat than our fathers were some centuries ago. We greatly need a government not only pledged to sanitary reforms, but willing and able to carry them out. One of its first objects would surely be the extinction of the traffic in pernicious food.

DIAPHRAGMATIC HERNIA CONSECUTIVE TO FRACTURE OF A RIB IN A HORSE.

BARRIER (*Gazette Medicale de Paris*) observes that fracture of the ribs is an extremely common accident, and is due to blows on the lateral parts of the chest, accidental falls during work, or when an animal is thrown down to be operated upon.

Most frequently these fractures are not serious in their consequences ; the two portions of the rib are not far removed from each other, and in the majority of cases they overlap, come in contact, and are firmly consolidated in the course of time. But in other cases, the determining cause of the fracture acts with such violence that one or both ends of the solution of continuity are driven inwards with very great force, and may more or less deeply penetrate the organs immediately subjacent.

It is usually the middle ribs—seventh, eight, ninth, and tenth—which from their situation sustain fracture, as they correspond to the most excentric point of the lateral convexity of the thorax.

If the bony fragments are driven inwards by the violence of the blow, they may wound the lung or perforate the diaphragm.

Goubaux has described a multiple fracture in which a splint of bone, completely detached, was lodged in the corresponding lobe of the lung, and there became encysted like a foreign body.*

In the present instance there was perforation of the diaphragm, through which a portion of the great omentum passed into the thoracic cavity. The animal was a very old horse, destroyed at the Veterinary School for anatomical purposes.

When the disposition of the diaphragm was only casually studied, it was observed that in the inferior part of the right pleural sac a not very considerable piece of omentum had passed through an opening in the peripheral fleshy portion of that muscle. A more attentive examination discovered that the hernied portion of the omentum adhered intimately to the inner surface of the seventh sternal rib at a point where there was a voluminous and old callus. The abnormal opening which established a communication between the abdominal and thoracic cavity was in the peripheral fleshy portion of the diaphragm, opposite the eighth rib, and close to its costal insertion. It was of small size, almost regularly circular, and measured about one and a half centimetre in diameter. It allowed the little finger to pass through, and the piece of omentum did not completely fill it, although it was evidently adherent to its border. With regard to this border, there was something particular to note. The contour of the opening formed a kind of round smooth ring, constituted essentially by cicatricial fibrous tissue, which kept the lips of the perforation apart from each other, and prevented their approximation under the influence of the contraction or relaxation of the diaphragm, or the pressure of the abdominal viscera. Goubaux, in two cases which he observed, had already remarked this peculiarity.

The seventh rib showed on its internal surface, about five centimetres above its articulation with the corresponding complementary cartilage, a somewhat large mass of callus that formed a sort of round salient ring, to

* *Journal de l'Ecole Vétérinaire de Lyon*, 1865. It may be noted that this was the fifth case of Diaphragmatic Hernia reported as caused by fracture of the ribs. Rossignol has also published two cases in the *Journal de Méd. Vétérinaire Théorique et Pratique* for 1830 and 1833. In 1833 Vegoli has likewise published another instance in the same journal. And Goubaux gives two additional observations in the *Journal de l'Ecole Vétérinaire de Lyon* for 1865.

the base of which adhered the hernied portion of the omentum. Here, there were evident traces of an old fracture, to which there could be no doubt the rent in the diaphragm was due; but it is to be noted that there was also on the next rib—the eighth—an analogous bony tumour, likewise having its origin in a fracture. An examination of the diaphragm at the corresponding point did not discover anything unusual, and the lung was healthy. If, however, the broken ends of the rib had not produced any lesions of the neighbouring organs, this was because the fracture occurred at the middle portion, and not at one of the extremities. In the latter case, the lung alone must have been wounded, and the diaphragm would have been too far away to sustain injury. However this may be, the tear observed in that muscle was of very long standing, for it dated from the period of the fracture itself. The little piece of omentum that had passed through was no more than ten to twelve centimetres long, and was adherent at both of its extremities: to the callus of the seventh rib at one end, and the margin of the opening at the other. Lastly, in consequence of the situation of the seventh rib, the diaphragmatic septum must have been perforated from before to behind—or, in other words, from the pleural towards the peritoneal cavity.

It is not necessary to dwell on the trifling seriousness of this diaphragmatic hernia. The slender dimensions of the opening, the nature of the hernied portion and its feebleness, its adhesions,—in a word, there was nothing to hinder the continuation of the function of digestion. There was no reason to fear the occurrence of complications so much to be dreaded as obstruction and strangulation, which would have brought about a fatal termination in a short time, if the opening had been sufficiently wide to permit the entrance of a knuckle of the small intestine, and if it was present at the left instead of the right side.

Barrier witnessed the latter condition two years ago in a horse of the 8th Hussars. This animal, six months previously, had sustained a fall at drill, but nothing serious was noticed at the time. Subsequently, however, it offered vague symptoms of indigestion. There were intermittent colicky attacks, accompanied by uneasiness; but these usually disappeared in a few hours by simple treatment. The horse had been admitted to the infirmary stables on several occasions from these attacks, the origin of which could not be divined; but it was thought that they were due to constipation, and douches of cold water in the rectum were therefore resorted to. The colic disappeared, as has been said, and the horse was on each occasion discharged as cured. One day, however, it was admitted suffering very much, and in spite of treatment it succumbed. At the autopsy, a considerable portion of the small intestine was found in the left pleural cavity. The piece measured three metres long, and had entered by an irregular opening in the diaphragm; this opening was of long standing, and had been produced by a fragment of the eighth rib, as was testified by an old callus on that bone opposite the rent.

This instance is only given to complete what has been advanced above, to the effect that diaphragmatic hernias are, more frequently than is surmised, the consequence of fracture of the ribs, and that, if in certain cases these fractures are not followed by serious results, in others they give rise to accidents which may terminate in death, absolutely in the same manner as is observed in Strangulated Inguinal Hernia. There is always a difference which complicates the situation; and this is that, in the one case, a surgical operation in every instance effects a radical cure if it is performed under favourable circumstances; while in the other the practitioner is reduced to the condition of a spectator, and is unable to afford any relief.

THE MANNER IN WHICH WOUNDS OF THE TRACHEA ARE REPAIRED IN ANIMALS.

ACCORDING to the *Centralblatt für Chirurgie*, which quotes from the Russian "Archives of Veterinary Science," Woronzoff has made incisions into the trachea of horses and dogs, and removed portions of that tube, in order to study the process of repair. From his investigations, he concludes that the cartilage wounds are filled up by granulation tissue, which is afterwards transformed into connective tissue. In the latter appear centres of cartilage proliferation, the rounded or fusiform cell-elements becoming converted into cartilaginous corpuscles. The fundamental substance, at first fibrillar, is afterwards hyaline; the cartilaginous centres become more numerous and extensive, and at length coalesce; and finally the loss of tissue is completely repaired. This result is arrived at in about two and a-half months, when the newly-inflicted wound is immediately closed; but if a tracheotomy tube has been allowed to remain in it for any length of time, a much longer period is required. In this case, the delay in cicatrisation is due to a considerable development of granulation tissue, and to the regressive metamorphosis of the cartilage-cells situated in the vicinity of the wound. The tracheal mucous membrane is also regenerated by granulation tissue. The epithelium is formed by the proliferation of the pre-existing cells at the margin of the wound. The mucous glands, of new formation, are produced at the expense of the epithelium, which sends off tubular prolongations into the submucous connective tissue.

IMPORTATION OF STOCK INTO NEW SOUTH WALES.

THE *South Australian Register* gives the following digest of the regulations proposed with regard to the importation of stock into New South Wales:—

"The countries from which stock may be imported under the proposed rules are Great Britain, Ireland, Canada, and the United States; and it is provided that in the event of any infectious or contagious disease not known in Australia existing in any of these countries, no introduction of stock from such places shall take place. A special exception is made in the case of Foot-and-Mouth Disease; but in the event of that malady existing in more than a hundred centres in any country, that is to be a sufficient ground of prohibition. All cattle or sheep intended for exportation to the colonies must be taken direct to the port of shipment, and are not to be put into 'any conveyance, stable, or other place where stock have been within the next preceding sixty days.' To secure the due observance of this rule it is made incumbent upon the shipper to make a statutory declaration that it has faithfully been adhered to. Prior to shipment such cattle and sheep, as well as any on board for the use of the passengers or crew, shall be carefully inspected by a qualified veterinary surgeon appointed on behalf of the colony; and the exporter must produce to the inspector a certificate from the seller or owner to the effect that such stock have been in the country for not less than sixty days, that they are free from infection, and that for sixty days next preceding they have not been in contact with infection. For further security it is provided that the local stock inspector shall endorse such certificate. Upon its being shown to the satisfaction of the inspector at the port of shipment that the stock are free from infection, and that the requirements of the Act have been complied with, a certificate to this effect will be given by him to the captain of the vessel, together with the certificate given by the

seller. A diary is to be kept by the captain of the vessel, in which a daily entry is to be made of the state of the health of all stock on board for delivery to the boarding-officer at the port of debarkation; and the master will also be required to make a declaration that the statements in the diary are correct; and furthermore, that no stock, fodder, fittings or effects are infected or likely so to be. In addition to this, it will be necessary for the captain immediately upon arrival to notify the fact to the inspector of stock for the port, who will forthwith examine the stock on board, together with a veterinary surgeon duly appointed for such purpose, whose business it will be to determine whether or not any of the animals are infected, and to grant a certificate, without which no cattle or sheep can be landed. Any animals found to be infected shall at once be destroyed; and all those free from infection shall be washed and disinfected, and then conveyed by water to the quarantine set apart for their reception. There they will remain for a period of not less than ninety days at the owner's expense, during which they will be washed and disinfected, as the inspector may direct; and no animals shall be allowed to leave until they have been examined and declared free from infection. Furthermore, it is provided that any cattle on board vessels for the use of the crew or passengers removed to quarantine shall remain there until the departure of the vessel, when they may be reshipped. No fodder put on board for the use of stock may be landed, and all fittings used in connexion with such stock, and all effects belonging to their attendants, shall be disinfected. The skins of animals dying or slaughtered during the voyage, if not thrown overboard, must be salted and packed away, and shall not be landed."

CONTAGIFEROUS PROPERTIES OF THE BLOOD OF ANIMALS AFFECTED WITH GLANDERS.

In a thesis presented to the Veterinary Institute of Dorpat, G. Schimming (*Wochenschrift für Thierheilkunde*) refers to the results of his own experiments and the facts recorded in our professional literature, and establishes: 1. That Glander-tainted blood injected into the veins of a healthy horse will give rise to Glanders; 2. That the length of the incubatory period depends, in such a case, upon the quantity of blood injected, and also, perhaps, upon the stage which had been attained by the disease in the animal from which the blood was derived.

In addition to these conclusions, Schimming's thesis shows:—

1. That the manifestations of Glanders sometimes do not appear until three months after the injection of contaminated blood—a fact which accounts for the non-success of Gerlach, Viborg, and Hering, when in their experiments they had recourse to this method of transmission;

2. That the blood of glandered animals, as a contagiferous agent, is less active than morbid products (nasal discharge, etc.) from diseased animals.

The attempts of Schimming to transmit the malady to the smaller domesticated animals (dogs, cats, and pigs), by injecting into their veins six to eight grammes of defibrinated Glander-blood, only yielded negative results; while the subcutaneous injection of a similar quantity of defibrinated blood produced the disease in a dog.

According to one of the conclusions of Schimming—that relative to the duration of the latent period—the contagious principle of Glanders possesses a property not usually observed with the contagia proper. The rapidity with which the primary manifestations of the action of these occur, does not altogether depend in an evident manner upon the quantity of contagiferous

material employed : in vaccination, for instance, we may introduce the virus by a number or by only one puncture, and yet the period at which the vesicle appears is not influenced.

With regard to the influence that the more or less advanced stage of the disease exercises upon the blood, as shown by the rapidity in the appearance of the symptoms in other animals inoculated with it, this would appear to be analogous to what has been observed in Cattle Plague under the same circumstances.

The difference in activity of glanderous blood in animals which appear to have but little receptivity for the contagium, according as it is injected into the veins and the subcutaneous connective tissue, is perhaps due to the circumstance that in the latter case the virulent principle is brought more directly into contact with one of the tissues which are ordinarily the seat of farcino-glanderous manifestations.

INFECTIOUS MAMMITIS.

On the proposition of the *Wagrisch-landwirthschaftlicher Verein*, an Agricultural Society in Holstein, Dr. Friedenthal, the Prussian Minister of Agriculture, in 1877 sent Professor Dieckerhoff, of the Berlin Veterinary School, to Stendorff, to study a disease affecting the udder of cows, and which had prevailed widely and seriously at that place. The Professor's report, addressed to the Minister of Agriculture, has lately been published in the *Deutsche Zeitschrift für Thiermedicin*, the *Wochenschrift für Thierheilkunde*, and more recently in the *Annales de Médecine Vétérinaire de Bruxelles*. Its value being thus testified to by three of the best Continental journals, we consider it our duty to put our readers in possession of a translation of the interesting report.

The farm of Stendorff, belonging to the Grand Duke of Oldenburg, and situated in Oldenburg (Holstein), comprises some two thousand acres, and its principal products are butter and cheese, which are made under the management of H. Drenkhan, who has 200 milch cows in winter and 180 in summer. The majority of the cows belong to the reddish-yellow breed most common in Holstein, and known as the "Angeln" breed ; with the exception of a few farms on which are crossed Ayrshires, the "Angeln" race may be said to be universal in that country.

The Stendorff pastures are partly very productive land, and partly peat bogs. Nothing in the situation of the farm, or the conditions of the soil, could be found to explain the appearance of an epizoötic or enzoötic disease upon it.

According to the evidence of H. Drenkhan, the outbreak of Mammitis, to which allusion is made above, was observed for the first time in 1873. During July of that year four cows were attacked, and in September five more. From that time up to March 1874, the malady did not appear again ; but after that month, and until September of the same year, eight new cases were reported ; while in 1875 there were only a few isolated cases. In 1876 it manifested itself during the winter and continued until the autumn, no fewer than 140 cows having suffered during that interval, some of them two and even three times. In the winter of 1876-7 more new cases occurred ; and in the summer of the latter year the number rose to something approaching 100. When Dieckerhoff examined the cattle on the farm, the lesions of the disease were discovered in sixty-four cows, and while he remained there two other cows became affected.

From its appearance in 1873 until the Professor's arrival, the malady had

not undergone any marked change in its characters. In some animals the morbid manifestations were not very intense; in others they were more severe. When care was taken to keep the udder continually empty, recovery sometimes took place in a relatively short time—from a few days to six weeks. Most frequently, however, recovery did not occur until the cows had calved again; and in very serious cases the portion of the gland involved in disease lost its function altogether. Very often the malady only attacked one or two quarters of the udder, though sometimes it involved three, or even the four quarters. The posterior quarters were oftener attacked than the anterior.

The development of the disease was rapid. Without, in many cases, any premonitory warning, and most frequently after milking in the morning, there appeared an inflammatory tumefaction of one or more teats. At the next milking indications of great pain were exhibited, and a little clotted milk withdrawn from the affected teats.

This Mammitis was observed in cows newly calved, as well as in those which had calved some time; and even those which had been "dry" for several weeks were not exempt. The disease was often recognised before half a day had elapsed; but in many other instances there were observed, as premonitory symptoms, anorexia and stiffness in movement, the inflammation in the udder not being discernible for from one to three days subsequently.

At the Bergfeld farm, adjoining Stendorff, Dieckerhoff found a heifer and a nine-months'-old calf suffering from the disease.

In winter the malady was less frequent than in summer; and according to Drenkhan, sudden changes of temperature, and especially the combined action of bright weather and strong winds, favoured its development.

The disease likewise prevailed during three years among the cattle of the Redingsdorf establishment (Eutin principality), situated a short distance from Stendorff, and containing about 100 milch cows. In the two last months sixteen cows had been attacked.

In general, the only differences noted in the malady were those of intensity in its manifestations. When the attack was slight, febrile symptoms were absent. The first indication was tumefaction, which commenced in one or other teat, but soon reached the substance of the gland. The udder offered a certain degree of hardness, and on mulsion it yielded a yellowish fluid containing large clots—the latter being greater in quantity as milking was less frequent; when frequent, the liquid retained its fluidity, though after standing some time there was an abundant deposit of caseous clots and glomerules of fat, as well as epithelial cells and *detritus*.

In slight cases, the disease did not extend beyond the teats or, at most, the galactophorous sinuses; then mulsion at first obtained altered milk, followed by that of a good quality. All disturbance usually ceased in one, two, or three days; and repeated mulsions every one or two hours sufficed to bring about a cure.

In other instances, the disease persisted for weeks, or even months, however frequently milking was performed, and it was only gradually that the milk assumed its normal characters; the clots insensibly disappeared, the milk became yellow, then grey, and at length it was healthy. Such a favourable termination only occurred when milking was thoroughly performed, and even then the teats which had been affected for some time furnished but a small quantity of milk for long after recovery; and most frequently the udder did not become quite healthy until after another calving.

In more severe cases, and especially those in which several quarters of the udder were involved, there was an increase of the general temperature, rigors, anorexia, and inrumination. The udder was much distended and hot; the

teats reddened and considerably tumefied. By mulsion, the diseased quarter only yielded a small quantity of yellowish fluid. Sometimes, notwithstanding the permeability of the canal of the teat, no milk was obtained, even by continuous mulsion, the affected quarter having apparently lost the power of secreting milk; while the anatomical lesions in the glandular substance were such that a complete re-establishment of function was impossible.

In the course of the disease, the udder sometimes appears to become "fleshy," and the milk sinus of the quarter always contains—even several weeks after the disappearance of the other manifestations—a trifling quantity of a grumous fluid. This Mammitis rarely terminates in death; though at times suppuration of the udder ensues, when the abscess usually opens only after several weeks.

At the autopsy of an animal, the four quarters of whose udder had been affected, and from which the secretion of milk had entirely ceased, there were only found in the lactiferous ducts caseous and fatty masses, with a yellow fluid. The walls of the galactophorous sinuses of this animal were thickened and granular in places. The glandular substance had evidently undergone atrophy in two of the invaded quarters, and their interstitial connective tissue was considerably thickened.

The course and nature of the manifestations observed in all these cases of Mammitis proved that the disease consisted, in general, in a simple parenchymatous inflammation, and that it was only in cases in which the malady presented a considerable degree of intensity, that the lesions extended to the interstitial connective tissue (Interstitial Mammitis).

In Germany the disease is often met with, but as a sporadic malady; until the present instance it had rarely been observed attacking so large a number of animals as at Stendorff.

In taking into consideration the causes of this disease, Dieckerhoff says we may, from a scientific point of view, class it with the *Infectious Mammites*. The inflammation, to judge by the symptoms observed up to the present time, reacts but slightly on the general health of the animals attacked; but its influence on the lacteal secretion occasions considerable losses. The obliteration of only one of the mammary quarters entails a marked diminution in the yield of milk, varying usually from four to five pints, though in some cows it may only be from three to four pints.

Usually the cows attacked by the serious form of the disease were killed, for it was soon discovered that if a cure were effected, the animals were not infrequently useless, so far as milk production was concerned. At Stendorff, where there were 180 milch cows, this infectious Mammitis caused a heavy loss—a diminution of 400 litres daily, equivalent to a loss of fifty-seven marks* annually on each cow.

According to Dieckerhoff, this epizoötic Mammitis is due to local infection: the other causes ("chills," change of food, etc.), which sometimes determine a sporadic inflammation of the udder, do not play any part in the development of the disease. The infrequency of the malady in summer, when the animals are constantly depastured, is a proof of this. The course of the malady, also, which always commences at the excretory ducts (the teat duct and galactophorous sinus), and extends thence to the gland substance without affecting the skin, is another argument in favour of the infectious nature of this Mammitis. The development of the disease appears to be due to the action of a special ferment, which exercises its influence on the milk stagnated in the mammary reservoirs; this ferment determines a prompt decomposition of that fluid, and causes the development of peculiar chemical principles which have an irritant and phlogogenous action on the excretory ducts of the

* The German *Mark* is equal to a Shilling English.—Ed. *V. J.*

mammary gland. The material characters of this ferment, like those of the majority of similar agents, are yet unknown.

Professor Franck, of Munich, who was the first to direct attention to this form of Mammitis (*Handbuch der Thierärztlichen Geburtshülfe*), expresses an opinion conformable to the ideas at present prevailing with regard to ferments. According to him, the cause of the alteration is the presence of fungi (*Bacteria*), the presence of which he has recognised in the contents of the diseased organ.* Nevertheless, Dieckerhoff cannot consider, as essential elements of this ferment, the *Bacteria* which appear in the fluid obtained from the diseased portion of the udder by milking. He has examined, microscopically, the fluid drawn from the udder of an affected animal milked every two hours; and he noticed that immediately after mulsion it did not contain any traces of these organisms, while half a day later they were found to be in great and constantly increasing numbers. These *Bacteria* presented all the characters of septic *Bacteria*, and they could not, therefore, be considered as constituting a special ferment, capable of giving rise to the disease. Besides, the number of these *Bacteria* was greatest in the secreted fluids, which were most altered, and composed chiefly of the caseous clots and yellow liquid; when these fluids began to assume the characters of normal milk, they appeared to furnish a less favourable medium for the development of septic *Bacteria*, being then only found in fluids which had been drawn from them two or three days previously.

In the presence of such facts, Dieckerhoff admits that it would be needless to argue as to the essence of the nosogenous principle and its relations to the malady, and he is of opinion that it is more profitable to direct attention to the most important ascertained fact, and examine the action of the infecting substance, in the existence of which there is every reason to believe. It is probable that the ferment is continually reproduced in the product furnished by the diseased organ, and that, consequently, if this product is not destroyed, it becomes a persistent source of Mammitis. The conditions in which the ferment contained in the altered milk determines the malady in healthy cows, are perhaps very diverse; but it is always certain that in many animals the milk stagnated in the udder decomposes less quickly than with others, and for this reason the former are not so readily affected as the latter. The tissue of the udder, even, is not endowed with an equal degree of receptivity for the malady in every animal; and it is very probable that, during decubitus, the udder comes in contact with infectious materials which bring about changes in the milk contained in the ducts.

And it may be that the ferment is also produced elsewhere than in the milk, though this question requires further examination. After his own researches, and according to the information given by Drenkhan, Dieckerhoff is willing to admit that most frequently the infecting substance is carried to the teat by the hand of the person who milks the animals, as well as during the recumbent position. From certain observations, the transmission of the infecting element of this disease by intermediate agencies might be admitted as probable. At Stendorff, the person who was entrusted with the surveillance of the diseased animals had been called the previous year to a dairy at Sagan to assist in the parturition of a cow. Six days afterwards, one of the milch cows in that dairy became affected with the Metritis then prevailing at Stendorff, and in a short time it was transmitted to five other cows in the same shed. In one of these an abscess formed, which opened spontaneously; and of the six, the proprietor sold five, as they were no longer useful as milch cows; the last completely recovered.

* Professor Franck's views and experiments are given in our "Veterinary Obstetrics," p. 694.—Ed. *V. J.*

The same person, also, in the previous year visited the cows at the Sierhagen dairy, Plemkau, with the view of inspecting them, and if found suitable, buying them. Ten days later, one of the cows he had examined and handled about the udder became affected, the disease presenting all the characters of the Mammitis just described—though in such a serious form that the animal was sent to the butcher.

The information gathered by Dieckerhoff did not allow him to draw any conclusion as to whether the infecting substance could be carried by the air, and then coming in contact with the udder of healthy animals, transmit the disease at a certain distance. Established scientific facts, however, unmistakably prove that certain conditions are favourable to the action of the ferment, and, consequently, to the development of this Mammitis. Among these conditions, Dieckerhoff notes, in the first place, an insufficient ventilation of the cowsheds during the winter months, and, as happens in the Holstein dairies, infrequent milking—only twice a day.

With regard to ventilation, directions were given to Drenkhan to greatly improve it; and it was recommended that milking should be performed three times a day. The latter measure was, however, declared by Drenkhan and other Holstein dairy-keepers to be incompatible with the general economy of their dairies.

The infrequency of the milkings influences the development of this Infectious Mammitis from the circumstance that the milk so long retained in the udder readily decomposes, and thus favours the production of the different ferments. The prolonged retention of milk in the udder is not the unique, nor yet the principal, cause of this disease, notwithstanding statements to the contrary in veterinary publications; and the occurrence of the malady in a calf of nine months, and several two-years-old heifers, as observed by Dieckerhoff, is given as a proof of this.

The Professor points out that a rational treatment of the disease should have for its object the modifying or preventing the action of the morbigenous agent; as curative treatment is only satisfactory in mild cases. With the exception of very benignant attacks, in which only one teat is affected, and that but slightly, the lesions due to the inflammation in the udder do not disappear for a long time; most frequently it is only towards the period of another calving that they vanish, and often the udder never regains its previous functional activity. In a relatively somewhat large number of cases, the udder is altered to such an extent that its secretory power is entirely lost.

The injection of disinfecting fluids—such as solutions of carbolic acid, salicylic acid, permanganate of potass, etc.—into the canal of the teats and the lactiferous sinuses, recommended on theoretical grounds, has been inefficacious in the treatment of the disease when it has been fully developed. These injections only reach the sinus, and do not penetrate the ducts, which are, with the gland substance, the principal seat of the malady. Drenkhan had recourse to these injections, but without success. The most efficacious measure tried was mulsion of the affected teats every two hours; and when it was fully and regularly carried out, in many instances the gland regained its function—at least in the succeeding period of lactation. This treatment, however, is so troublesome, and requires to be carried on for such a long time, that, in view of the marked loss the disease causes—so far as the actual lactation period is concerned—and because of the considerable advantage accruing from immediate destruction of the morbid cause, it is preferable not to have recourse to it.

In Dieckerhoff's opinion, the treatment of the disease, based on the etiological knowledge possessed, in order to be successful should be as follows. 1. The milk from the affected udders should not be allowed, as hitherto, to

fall on the pastures or floor of the cowsheds; that the mulsion of affected animals should be allotted to a special person, who should have nothing to do with healthy cows, and that the milk ought to be collected in special vessels, which should always be kept in a particular place and disinfected every day by means of boiling water. 2. The fluid drawn from the diseased organ should be most carefully destroyed—as by burying it in a secluded place (while the animals are housed), or disinfected by some chemical agent (carbolic acid or chloride of lime). 3. The cowsheds should not only be well ventilated in winter, but they ought also to be repeatedly disinfected by washing with quicklime and cleansing the floors of the infected stables: a good wash is composed of one part of quicklime, one of crude carbonate of potass, and twelve parts of boiling water.

In the Holstein cowsheds in general, and in those of Stendorff in particular, the udders were always kept very clean. Washing them with the chlorine water or carbolic acid solution sometimes recommended, did not appear to Dieckerhoff to be practicable in these cases: as it has a very epnemeral action, and cannot be repeated sufficiently often, it cannot even be considered as an efficacious preventive measure.

Reviews.

Dog Breaking. By Gen. W. N. Hutchinson. London: John Murray.

No fewer than six editions of General Hutchinson's "Dog Breaking" have been demanded by the sporting and dog-fancying public within a comparatively short space of time, and this fact testifies in the most satisfactory manner possible that it is a valuable book of its kind. The General claims for his system of dog-breaking, that it is the most expeditious, certain and easy method, whether great excellence or only mediocrity be required; and the success of his work in the book market may be taken as an indication of the success attending his instructions. The gallant author insists that great excellence in training dogs for sporting purposes (and indeed with any other object in view) is only attainable by the teacher's exercising constant kindness towards his pupil; and that the period of schooling, instead of being a time of punishment, had added to the happiness of the animal. Kindness, firmness, and quickening of the creature's intelligence, are the bases on which the General founds his system, and he demonstrates the correctness of his method by anecdote and the results of experience. Pointing out what is required in a well-broken dog, he writes: "You may say, 'How is all this, which sounds so well in theory, to be obtained in practice without great severity?' Believe me, with severity it never can be attained. If flogging would make a dog perfect, few would be found unbroken in England or Scotland, and scarcely one in Ireland."

Referring to the way in which the celebrated Astley trained his horses for the circus, we are told that his method "was to give each horse his preparatory lessons alone, and when there was no noise or anything to divert his attention from his instructor. If the horse was interrupted during the lesson, or his attention in any way withdrawn,

he was dismissed for that day. When perfect in certain lessons by himself, he was associated with other horses whose education was further advanced. And it was the practice of that great master to reward his horses with slices of carrot or apple when they performed well. Mons. A. Franconi in a similar manner rewarded his horses. One evening I was in such a position, at a performance of the *Cirque National de Paris*, that I could clearly see, during the *Lutte des Voltiguers*, that the broad-backed horse held for the men to jump over was continually coaxed with small slices of carrots to remain stationary, whilst receiving their hard thumps as they sprang upon him. I could not make out why the horse was sniffing and apparently nibbling at the chest of the man standing in front of him with a rein in each hand to keep his tail towards the spring-board, until I remarked that a second man, placed in the rear of the other, every now and then slily passed his hand under his neighbour's arm to give the horse a small piece of carrot."

The instruction of the dog appears to be an easy matter, if General Hutchinson's directions are followed out; and to those who have studied animal intelligence, there can be no doubt that his plan is the best. But as our readers are not specially interested in training dogs for sport, we need not do more than refer those of them who are lovers of the gun and care to train their own dogs, to those portions of the book allotted to this subject.

To the general and professional reader, the General's anecdotes and odds and ends, for those more particularly who love the dog and gun, are interesting, and often amusing and instructive.

When the General, at the conclusion of his book, comes to treat of the management of the dog in health, and with a view to the prevention of disease, he enters upon somewhat debatable ground.

We, nevertheless, are of opinion that on the whole he is not much in error, except with regard to the value of vaccination as a preventive or protective measure against Distemper. Though he asserts that the balance of testimony and experience is in favour of the utility of the operation, yet he is bound to confess that there are authorities of weight who think that no good results from it. We believe that nearly all, if not all, the members of the veterinary profession now-a-days endorse the opinion of Blaine, that "vaccination neither exempts the canine race from the attack of the Distemper, nor mitigates the severity of the complaint."

A Few Rules of Medical Etiquette. By a Licentiate of the Royal College of Physicians. London: Baillière, Tindall & Cox.

"A Licentiate of the Royal College of Physicians" has attempted to lay down certain rules of Medical Etiquette, and has placed before his colleagues a definite law for "the guidance of those who wish to act on friendly terms with their professional brethren, and thereby to prevent those constant unpleasant feelings which are caused by a want of knowledge of Professional Etiquette."

No one can deny the truth of the observation the "Licentiate" makes,

that "Medical Etiquette, if strictly carried out, as it should be, is one of the greatest ties which medical men have to bind them together and make them work happily; and it is frequently from a misunderstanding as to what constitutes etiquette that we so often find one man falling out with another. If we had distinct rules to lead us, we should, perhaps, hear less than we do of so much ill-feeling existing, and our medical press would not be troubled with so many letters upon medical etiquette, professional differences, etc., etc." He further remarks: "We, like other men, have to live, and this is one point which should always be borne in mind. If we act as becomes gentlemen, taking care that we do that which is right, honest and straightforward, we should never allow such trifles as a patient changing hands, or a young man commencing practice in our midst, to influence the friendly feeling which should exist in such a limited body. If we take any small town and look around us, we see amicable relations maintained between almost all classes; but how seldom do we find, say, two or three medical men living in the same town all friendly—able and willing to assist each other, to shake hands together, and to meet at each other's houses on terms of intimacy? Not often does this happen: and why? If we ask ourselves the question, I believe we shall find in a majority of cases it is from some breach of medical etiquette; and if it be asked what are the rules of medical etiquette, there are few who can tell you what they are. Even as regards a new comer into a town, you will find it is hardly known whose place it is to make the first call, and this alone may be the means of long-continued isolation."

What success may attend the attempt to define the relations which should exist between medical men in their dealings with each other, and to establish a code of professional ethics, it would be difficult to prognosticate; as it is difficult to make men conform to laws when no penalty can be imposed for their infringement. And this conformity is less likely to be observed when there are no generally-recognised rules or laws, and the matter of etiquette is left pretty much to the taste and decision of each member of the medical profession.

But the outline of professional conduct which should be followed by his brethren is wisely framed, and if it is only remembered and carried into practice in every-day life, cannot fail to be productive of good. The rules are only thirteen in number, and occupy fewer than thirty small pages. Much of what is drawn up for the guidance of medical men is quite as applicable to the conduct of veterinary surgeons towards one another. No one in the veterinary profession has yet ventured to give us a treatise on professional etiquette; and until this is done we would recommend those who are desirous of gaining a faint notion of what is deemed necessary in this direction in the sister profession, to the cheap little book which the "Licentiate of the Royal College of Physicians" has produced.

VETERINARY DIAGRAMS. Cirencester: Baily & Son.

The veterinary diagrams published in France by Asselin of Paris, and re-published in this country by Messrs. Baily of Cirencester, will be

found useful by amateurs, as well as by veterinary students and practitioners. Drawn by one of the most accomplished veterinary surgeons in France—M. Mégnin of the French army—their correctness is vouched for. They consist of five sheets. The first contains eight coloured figures representing the external form and elementary anatomy of the horse; the second has forty-two figures illustrating the structure of the teeth indicating the age of the horse, ox, sheep, and dog; the third gives fifty figures showing the defects and external indications of disease of the horse; the fourth likewise has fifty drawings relating to shoeing of the horse, mule, and ox; while the fifth diagram contains illustrations of the anatomy of the ox, and the divisions of the carcase of that animal from a butcher's point of view. Many of the illustrations are well coloured, and the whole are accompanied by full descriptions which greatly enhance their value.

Jurisprudence.

IMPORTANT TO OWNERS OF HORSES.

DAVIS *v.* MOSELEY AND SONS.

THIS was a case heard at the Bloomsbury County Court, before a jury, and involved a question of considerable importance to veterinary surgeons.

It appears that in the latter end of last November, the plaintiff, an auctioneer, of Greek Street, Soho, had a valuable bay mare, for which he had given £40, and had refused to sell for £70; and the animal, being seized with a slight cold, was sent to the establishment of the defendants, who are veterinary surgeons at Dorset Square, to receive professional attention—the understanding being that plaintiff should be sent for if the mare got worse. Plaintiff sent frequently to know how the animal was getting on, and was told it was progressing satisfactorily—receiving the same answer on the morning of the 17th December. On the 21st of December, however, upon calling at defendants' establishment, plaintiff's coachman was informed that the mare had died of Puerperal Fever, and that its carcase had been disposed of to the knackers. This was all the satisfaction plaintiff could obtain, and he now brought an action to recover £49, the value of the mare.

The plaintiff and his coachman having been called in support of facts as stated, the defendants' counsel submitted that there was no proof of negligence on the part of the defendants, and that therefore the plaintiff should be nonsuited. Thereupon one of the jury asked permission to express an opinion upon the case previous to his Honour's giving judgment, should he not allow the case to be submitted to them; and on his Honour's acquiescing, he stated that there was, in their opinion, a case for their decision; but his Honour stated that he was very sorry to inform them that the law was against Mr. Davis, but he would look into the case, and on the next day he would give his judgment, which he accordingly did, as follows: That if he had been permitted by law to express his sympathies, which he was not, he should say he decidedly felt for the plaintiff; as, however, the plaintiff had failed to show that the defendants had contributed by negligence to the animal's death, he had nothing to do but to give judgment in defendants' favour.

The defendants' counsel strenuously applied for costs, but his Honour said that under the old Act he had the power to refuse, which he was pleased to say he would avail himself of.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD OCTOBER 2ND, 1878.

Present—The President in the chair; Professors Simonds, Brown, McCall, Williams, and Pritchard; Messrs. Balls, Batt, Blakeway, Broad, Cartwright, Collins, Cuthbert, Dray, Fleming, Freeman, Gowing, Greaves, Harpley, Morgan, Reynolds, Taylor, Withers, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the last meeting were read and confirmed.

Correspondence.

Letters were received from Messrs. Cox, Moon, and Proctor, regretting their inability to attend the meeting.

A letter was received from Mr. Loch, enclosing a copy of the returns of the House of Commons, and the Order in Council at present in force on the Contagious Diseases (Animals) Act.

A letter from Mr. Powys, the Secretary of the Royal Veterinary College, forwarding a copy of the latest bye-laws and regulations, for the acceptance of the Royal College of Veterinary Surgeons.

A letter from Mr. Fearnley, in which he desired to present to the library a copy of his work on "The Examination of Horses as to Soundness."

On the motion of Mr. HARPLEY, seconded by Mr. FLEMING, a vote of thanks was awarded to the donor.

A letter from Mr. Frank S. Billings, student of veterinary science at the Berlin Institute, enclosing a photograph of the late Professor Gerlach, Director of the Institute, for presentation to the Royal College of Veterinary Surgeons.

On the motion of Professor WILLIAMS, seconded by Mr. DRAY, a vote of thanks was passed to Mr. Billings for his presentation.

A letter from Mr. Frank Payne, of Devizes, a student of the Royal Veterinary College, stating that he had been rejected three times on his first examination under the old rules, and wishing his case to be laid before the Council.

The SECRETARY stated that a reply was written to the effect that, in accordance with the Bye-laws of the College, Mr. Payne would be ineligible to present himself again before the Court.

Mr. TAYLOR thought the bye-law an iniquitous one, and expressed his intention to move a resolution for its abolition.

A letter from Mr. Dunsmure containing the report of the July examinations was read.

Letters were read from Mr. Davies, of Oswestry, and Mr. Joseph Wicherley, who were both rejected under the old rules. They had been rejected twice, and wished to know what course they were to adopt—whether they could come up for examination at Christmas.

The SECRETARY stated that the two gentlemen came up under the old rules, and he thought the same system should be adopted in Scotland as was adopted in England—namely, that there should be a Board for the first, and also for the two years' examination on the same evening. If this system had been adopted these gentlemen would probably have passed.

Professor WILLIAMS said the question was put by him at the last meeting of the Council, and it was then voted that there was to be no examination for these men.

Professor SIMONDS said there was only one Court of Examiners at the present time. and that was separated into two parts—one section acting for Scotland and another for England ; and if anything like seven students could be mustered from the three schools, the Court could be called together without any violation of the Bye-laws.

Professor WILLIAMS pointed out that if Bye-law 46 was to prevail, the gentlemen referred to would not be examined at all. Were they to make a composite examination in London, Glasgow, or Edinburgh, or what were they to do? He thought the men were entitled to an examination.

The PRESIDENT thought that the Council should not act harshly towards those students who came up under the old rules, and they ought to concede the point and clear such students off. There should be two more examinations under the old system, and this, he thought, would meet the justice of the case.

Professor SIMONDS.—"Do you mean two more for the final examination or the first?"

The PRESIDENT said he would propose to join them together.

Professor SIMONDS said that that could not be done. If he understood rightly, the final examination for the diploma would cease next July.

The PRESIDENT said that was so.

Professor SIMONDS remarked that those who had passed their first examination at Christmas must return to the school and conform to the rules before they were eligible for their second examination. The examinations could not be put together. By throwing the three schools together and making up a certain number of students they said, "We are justified in calling the Court together for the first examination." After a time these men would be eligible for their second examination.

Professor WILLIAMS said the men referred to by the Secretary had not had the opportunity of presenting themselves in Edinburgh. If a mistake had been made the men ought to have the advantage of the mistake, and present themselves at Christmas for examination ; and if the final examination was to cease in July, these men, if they were suffering from a mistake made by the honorary secretary, should be allowed to present themselves for their second examination in July next.

Mr. FLEMING asked if it was necessary that seven should be examined under the rule referred to. The time might come when there would only be three or four candidates to be examined: otherwise the rule ought not to be broken.

Professor MCCALL hoped that whatever was agreed, the men should be allowed to present themselves for final examination at Christmas.

After some conversation on the matter,

The PRESIDENT said it was quite clear the gentlemen in question could not pass under the old rules. A certain number of terms would be required between each examination.

Mr. GOWING thought there ought to be some existing period in which they could come up and present themselves, and if they were not then in a position to pass, the rules might be brought to bear against them at a future period.

After several suggestions and counter-suggestions,

Professor WILLIAMS gave notice that at next meeting he would move that Bye-law 31 of the old rules be suspended as regards those students who were not allowed to present themselves for the first examination in July 1878.

Professor WILLIAMS, referring again to the final examination, asked whether, if there were less than nine next April or July, they were entitled to an examination under the rules.

Professor SIMONDS.—"The old bye-law is under operation."

Professor WILLIAMS.—"No. 31? But it is the same as 46 in the new Bye-laws."

The PRESIDENT pointed out that there was no limit as regards numbers under the old bye-law.

Professor MCCALL begged to propose—"That there should be a final examination at Christmas under the old system, and also in July."

Mr. FLEMING seconded the motion.

Professor SIMONDS said there would be a meeting of the Court of Examiners at Christmas, April, and July. He thought it would be fair and just that those who were eligible for their final examination at Christmas, if rejected then, should be allowed to present themselves in April; if then rejected, then to present themselves in July; and if again rejected, then there would be an end of the matter.

Professor WILLIAMS moved—"That, irrespective of numbers, three examinations under the old system be held: namely, at Christmas, April, and July next."

Professor MCCALL seconded the amendment, in favour of which he withdrew his motion.

The amendment was put and carried.

The obituary notice was read.

The Fitzwygram Prizes.

The SECRETARY read the report in reference to the examination for the above prizes.

The Fellowship Degree.

The report in reference to the examinations for the above degree was also read.

The SECRETARY stated that a letter had been received from Professor Fearnley, Elgin Road, St. Peter's Park, who stated that some gentlemen were about to read with him for the Fellowship degree, and if less than four he wished to be informed whether there were any others who proposed to go up on November 1st. He (the Secretary) was not aware of any gentleman who wished to go up then.

In answer to Professor PRITCHARD,

The PRESIDENT stated that hitherto there had not been a committee appointed by the Board to report upon the examinations in reference to the Fellowship Degree, but in future a committee might be appointed if thought advisable by the Council.

Finance Committee.

The report stated that the vouchers and receipts for payment during the preceding quarter had been examined and found correct. The Treasurer's quarterly balance-sheet represented liabilities to the amount of £126 15*s.* 10*d.*, which the committee recommended should be discharged. There was also appended a detailed statement of the cost of examinations in Scotland, as requested at the last meeting of the Council.

Some discussion followed as to what some of the members considered excessive charges for the Scotch examinations.

Mr. FLEMING explained that the seeming excessive charges might be accounted for by the fact that there were two examinations on one day.

The matter was then allowed to drop.

Cheques were ordered to be drawn for the current expenses.

The report of the House Committee was read, which, with the report of the Finance Committee, was received and adopted.

Petition to the Duke of Richmond.

The PRESIDENT read the following report of the interview with the Lord President of the Council :—

"The Committee appointed by the Council have to report that they obtained an interview with His Grace the Duke of Richmond, President of the Privy Council.

"The Committee urged the claims of the veterinary profession on the favourable consideration of the Government. His Grace fully admitted those claims, and promised to bring them before his colleagues. But he added, 'In the present state of the Exchequer, and having regard to the demands which are being made by the present crisis on the National Funds, I fear I must say that this is not a favourable opportunity of pressing your claims.'

"The Committee then asked the assistance of his Grace in obtaining rooms in one of the Government buildings in case no pecuniary grant could be made at present. His Grace said he was afraid all the Government buildings were at present fully occupied, but promised to make inquiry.

"His Grace then asked what sum in the way of grant the Royal College of Veterinary Surgeons would require. The answer given was to the effect that the purchase of ground and erection of suitable premises would cost about £6000; that nearly £2000 had been subscribed; that £2000 might be borrowed on the security of site and buildings if the Government would give £2000; that the interest of the borrowed money would be about equal to the rent at present paid for the inadequate premises in Red Lion Square.

"The deputation having thanked his Grace for the kindness with which he had listened to them, withdrew.

"The Committee think that the application might be renewed with advantage about the time when the estimates for the year are being prepared."

Terms of Agreement with the Highland and Agricultural Society.

The SECRETARY read the articles of agreement between the Council and the above Society, and some discussion ensued as to several points.

In reference to the period for the termination of the Society's examinations,

Mr. FLEMING moved to fill in the blank in the draft of agreement with the words—"That the examinations of the Highland and Agricultural Society cease from and after the date of the signing of the agreement."

Mr. DRAY seconded the motion.

An opinion having been expressed by several of the members adverse to the above proposition,

The PRESIDENT suggested as an amendment, "That the examinations cease from and after the 1st January, 1879."

This was agreed to, and it was also resolved to send the agreement to Mr. Loch, so that it might be drawn up in accordance with the views expressed by the members of the Council.

On the motion of the PRESIDENT, a committee, consisting of the President, and Messrs. Harpley, Collins, Williams, and Robertson, was appointed to draw up the exact terms of the agreement.

The meeting having terminated,

A Special Meeting

was then held to consider the notice of motion given by the President as to the alteration and amendment of Bye-law 49, and the cancelling of Bye-law 50.

The PRESIDENT explained that the matter had been discussed at previous meetings, and reiterated his views on the subject. Several members of the Council had expressed a strong objection to an examination before the College of Preceptors. On the other hand, it was felt by other members that it would be extremely objectionable to admit to the Fellowship Degree any candidates except those who were really qualified by literary attainments for the higher branch of the profession. A compromise had been suggested in lieu of Bye-law 49, which ran as follows :—

"49. At least once in each year, at such time as may be appointed, the Council shall appoint a special Court of Examiners for the purpose of examining candidates applying for the degree of Fellow. But no examination shall take place unless there are at least four candidates. This special Court shall consist of not less than three members."

It was proposed to insert, instead of "three," the word "four," and also to add, "of whom one shall be a member of the College of Preceptors." It would then read, "That no examination shall take place unless there are four candidates. This special Court shall consist of not less than four members, of whom one shall be a member of the College of Preceptors." It was proposed to altogether expunge Bye-law 50. The result would be that there would be three professional examiners and one literary examiner, and he believed that this would be acceptable to the feelings of the profession generally.

Mr. FLEMING, in seconding the motion, said he looked upon any reduction in the test for the Fellowship Degree with very unfavourable eyes. He thought, however, that those gentlemen who had graduated before the degree was made, should have some exemption from the severe ordeal which would be imposed on those who now attended the schools. It was in the hands of the Council and of the Fellows to see that none but those who were worthy of the honour should be admitted to the rank of Fellow; and he trusted that if the Bye-law were expunged and the new one substituted, the Council would take into consideration the application of as severe a test as could be submitted to with any success by those who had been in practice for some time, and desired to obtain the Fellowship Degree. The great curse of the profession had been the want of education, and to remove this the degree of Fellow had been instituted.

The motion was put and carried.

The PRESIDENT said he wished to move, in connection with this, that a committee be appointed to draw up instructions to the College of Preceptors as to the standard of education to be fixed upon in reference to the obtainment of the Fellowship Degree.

Mr. BROAD seconded the motion, which was carried; and a committee was subsequently appointed, consisting of the President and Messrs. Fleming, Harpley, and Taylor.

Mr. FLEMING called attention to the successful efforts that had been made by Mr. Cowie, a member of the Royal College, and five hundred other members of the profession, in inducing the French authorities to modify the custom which had hitherto prevailed in the French veterinary schools of practising upon living animals; and said that Mr. Cowie, in a letter, had expressed himself anxious that the Royal College of Veterinary Surgeons should give an expression of its gratitude for the diminution that had been effected in the operations on living creatures in the French schools.

Mr. TAYLOR thought that as there might be some exaggeration and misrepresentation on the subject, such a vote as was proposed ought to be considered cautiously before it was passed.

After some desultory conversation, it was agreed that Mr. Cowie's letter be laid on the table.

Mr. TAYLOR gave notice that three months after the present date he should move that Bye-law 37 be expunged.

The Council then adjourned.

SPECIAL MEETING OF COUNCIL HELD OCTOBER 16TH, 1878.

Present—The President, Messrs. Balls, Broad, Collins, Dray, Moon, Withers, and the Secretary; the President in the chair.

The minutes of the two preceding meetings were read and confirmed.

On the motion of the PRESIDENT, seconded by Mr. DRAY, the amended "Bye-law 49," and "Bye-law 50" cancelled, as adopted at a special meeting of Council held October 2nd, were duly signed and sealed in accordance with the provisions of the Charter.

THE ROYAL VETERINARY COLLEGE.

ON October 1st the introductory lecture at the session of the Royal Veterinary College, St. Pancras, was delivered by Professor Brown. The lecture hall was crowded with students and others, many of whom had to stand in the lobby of the museum. There were also visitors present representing the Government, the army, and the medical and veterinary professions. Mr. R. B. Berens occupied the chair, and was supported by Professors Simonds, Pritchard, Cobbold, Tuson, Brown, etc.

Professor BROWN, in the course of his lecture, enlarged on the analogies between the animal, the plant, and the mineral kingdoms, with the object of getting the students to take a wider and more comprehensive view of life than that generally entertained. He impressed on them that they would have to resort to artificial divisions in order to distinguish between the living and the dead; and in doing so they would come in contact with infinite diversity. The science of biology was to point out the difference in things; but he would depart somewhat from the scientific rule, and endeavour to give them some general idea of the more important aspects in which the mineral, plant, and animal kingdoms could be shown to be associated together. They were in the habit, perhaps, of conceding certain vital attributes to the plant world, but after all it was only as a matter of concession; they admitted that plants really did live, and in a sense had vital functions, but they concentrated their ideas of life upon its manifestations in the higher animals. The Professor then referred to the theory recently propounded by Mr. Charles Darwin, as to plants sharing almost the same functions of life as the higher animals, and observed that if they declined to attribute to the plants the same capacity they would be puzzled to account for the actions that they called mental processes. The Professor remarked that it was doubtless a strange fact that plants were affected by light and darkness. If one was removed to a comparatively dark place, it would lean towards the smallest possible ray of light. If removed from a situation where day and night alternated, the plant would go on sleeping for a time, but by-and-by it would assume the day position of activity. Let it be returned to its normal state, and it would return to its old habitat. He thought there was an apparent similarity here between memory and the indulgence of sleep in the higher animals. The learned Professor then turned his attention to the dust. They had all no doubt heard of crystals, and it was an interesting study to inquire why a series of atoms should suddenly recollect their right place with greater precision than was attainable under ordinary conditions. Place arsenic and sulphur in any situation, and they would range themselves in different form by separation. The student would find distinct intention in this life, and the crystals were examples of it. There was apparent among

them—first, good shape; and, second, purity. They must be strikingly well-formed and pure; and in all their studies these elements must exist; and it was for them to devise means to arrest the general tendency to get out of order. They would find crystal struggles and death; for, as in animals, even they had to give up, sooner or later, their crystal ghosts. The more carefully and diligently they examined the facts which science brought before them, they would find they had to give to the term life a wider and less distinctive meaning. The lecturer then counselled the students to prosecute their studies with diligence. There was only one gate to knowledge, and it was a very strait one. They should neglect nothing, but always truly feel

> "That something attempted, something done,
> Has earned a night's repose."

The CHAIRMAN afterwards presented the prizes to the successful students.

On the motion of General Sir F. FITZWYGRAM, Bart., a hearty vote was awarded to the Chairman, and the proceedings terminated.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE thirty-sixth annual meeting was held on September 30th, at the Queen's Hotel, Worcester, Mr. H. J. Cartwright, of Wolverhampton, in the chair.

Professor Pritchard was elected president, and Messrs. Olver (Tamworth) and Goodall vice-presidents, for the ensuing year. Mr. Blakeway (Stourbridge) was re-elected treasurer, and Mr. George Carless (Worcester) honorary secretary.

Mr. THOMAS GREAVES (Manchester) read a paper on "Germs," in special reference to those diseases which come under the notice of veterinary surgeons. He argued in favour of the germ origin of Pleuro-pneumonia, Glanders, and Farcy, and pointed to the destruction of germs by the use of disinfectants as the best way of dealing with such complaints.

Professor PRITCHARD pointed out that from what Mr. Greaves had said many might suppose that germs occurred only in animals in an unhealthy condition. The germ of a particular disease might be developed at the very earliest period of an animal's life, and it might remain latent until opportunity offered for its subsequent development. The manner in which poisonous germs were introduced into the system was a subject which demanded grave consideration, inasmuch as nothing was more easy than their introduction. It had been stated that for the reproduction of disease, germs of a like character must be introduced into the system. For the production of Glanders the germs from a case of Glanders must be introduced. He did not completely endorse this opinion, but he thought it would be well if it could be shown that by destroying the whole of the germs of Glanders this disease could be stamped out. It was not well to rely altogether on the use of disinfectants for the purification of stables and similar places, but much good might be done by internal administration. Carbolic acid administered in Pleuro-pneumonia had been found very efficacious. He was inclined to think that there were certain diseases, such as Cattle Plague and the like, which it was improbable would be ever completely stamped out.

Professor WILLIAMS said he did not think the term germ could be applied to those various contagia which seemed to propagate disease from one animal to another, except with regard to Splenic Apoplexy, in which it had been most exactly shown that the disease was alone propagated by inoculation. In other diseases it might be that the media of propagation were not germs, but something else altogether. In Glanders the disease probably was not resident in the germ at all. Diseases, he was of opinion, did occur spon-

taneously, without contagion, infection, or anything else. The authorities differed on the subject, and with equal clearness demonstrated, according to the side they took, either the truth or inaccuracy of the theory of the spontaneous generation of germs. With regard to the use of antiseptics, he remarked that Pyæmia was far more frequent in the human body than in the horse, and that this was the case notwithstanding the unfavourable conditions under which sick horses had to be attended. Glanders, he believed, was generated spontaneously, and however thoroughly a stable might be disinfected, they might find a horse apparently healthy in which the disease showed itself.

Mr. TAYLOR (Manchester) said there was nothing tangible about the germ theory to commend it to practical men. He should like first of all to be shown healthy germs, and then afterwards to be told how they became unhealthy.

The discussion was continued by Mr. BLAKEWAY and other gentlemen.

Mr. GREAVES, in reference to a remark which was made, said he had never seen a case of Glanders develop from Diabetes. There was in all cases of Glanders a previous history of the disease. He admitted the difficulty of destroying contagious germs, and argued that this difficulty was the very reason why the disease seemed to be latent and to show itself irregularly.

The proceedings concluded with votes of thanks to Mr. Greaves for his address, to the Chairman, and to the officers of the Society for their services during the past year.

Obituary.

THE following deaths are reported :—

Mr. Antony Adrian Smith, of Melbourne, Australia, who graduated April 17th, 1834.

Mr. James Michael Howell, of Melbourne, Australia, who graduated June 12th, 1844.

Mr. Charles Samuel Hirst, of Barnet, Herts, who graduated April 27th, 1859.

Mr. Frederick Augustus Auger, of Walpole, Suffolk, who graduated April 5th, 1877.

Army Veterinary Department.

Gazette, September 24th.

8TH HUSSARS.—Veterinary-Surg. T. Flintoff, from the Royal Artillery, to be Veterinary-Surg., *vice* Veterinary-Surg. S. L. Pallin, transferred to the 18th Hussars.

18TH HUSSARS.—Veterinary-Surg. S. L. Pallin, from the 8th Hussars, to be Veterinary-Surg., *vice* Veterinary-Surg. of the First Class J. Mills, transferred to the Veterinary Department.

VETERINARY DEPARTMENT.—Veterinary-Surg. of the First Class J. Mills, from the 18th Hussars, to be Veterinary-Surg.

XUM

Gazette, October 1st.

VETERINARY DEPARTMENT.—The undermentioned gentlemen to be Veterinary Surgeons on probation:—Richard Head Ringe, Charles Edward Smith, Gerald Herbert Fenton, and Robert Pringle.

Gazette, October 18th.

ROYAL ARTILLERY.—Veterinary-Surg. Herbert Batcheler resigns his commission.

The Lieut.-Governor of the Punjāb presided at a lecture given at Simla recently by Mr. F. F. Collins, Principal Veterinary Surgeon in India. The lecture was of a most interesting nature; and at its close his Excellency, in moving a vote of thanks to the lecturer, mentioned the measures adopted by Government for encouraging the improvement in the breed of horses. The subject has of late been receiving the attention it merits; and the success of the horse fairs held last cold season at Dehra, Ghazee Khau and Rawal Pindee show that the prizes offered, and the facilities given for obtaining good stallions, have had the desired effect; and horse-breeding in the Punjāb may now be said to have been established on a sound basis.

Veterinary surgeons gazetted to regiments will be liable to contributions and subscriptions to mess and band funds, according to the rules which apply to other regimental officers. Veterinary surgeons attached to regiments will not be liable to pay either contributions or subscriptions.

The Secretary for War has decided that veterinary surgeons gazetted to particular regiments or corps, will be entitled to regimental allowances only.

Notes and News.

VETERINARY LITERATURE.—We learn that His Royal Highness the Prince of Wales has been graciously pleased to accept a copy of the work entitled "Management and Diseases of the Dog," by Mr. J. W. Hill, veterinary surgeon, of Wolverhampton.

The following is a copy of the letter received by Mr. Hill in acknowledgment of the work:—"Abergeldie Castle, Ballater, N.B., 9th October, 1878. Sir,—I have had the honour of laying your letter of the 5th instant before the Prince of Wales; and I am desired, in reply, to convey to you the expression of His Royal Highness' thanks for the copy of your work on the 'Management and Diseases of the Dog,' which you have been so good as to transmit for his acceptance.—I am, sir, your obedient servant,

"J. Woodroffe Hill, Esq. "FRANCIS KNOLLYS."

TRICHINOSIS IN BADGERS.—A correspondent of the *National-Zeitung*, writing from Guben, states that a badger recently shot in that neighbourhood was found on examination to be infested with trichinæ. It was by accident only that this discovery was made, one of a company of sportsmen who had determined on supping on the animal in question having amused himself by submitting a portion of its muscular fibre to microscopical examination.

SHEEP-POX IN POSEN.—According to a report furnished to the *Bromberger Zeitung*, the Sheep-pox in the Tarnowo district of Posen has recently extended so considerably that a sanitary cordon has been drawn, beyond which the exportation of sheep, sheep-dung, and wool, is absolutely forbidden. For the present the movement of sheep from place to place within the district, and their importation from without, are still permitted under stringent regulations and supervision.

TURKISH BATHS FOR HORSES.—Mr. Wm. M. Singerly of Philadelphia has provided in his private stables facilities for treating his favourite steeds to the luxury of a regular Turkish bath. It is said that the horses seem to enjoy the treatment, and reeeive benefit from it.—*New York Tribune.*

DISEASE AMONG HORSES IN AUSTRALIA.—It is reported that the horse-disease, affecting the bones of the face and limbs, has again made its appearance amongst thorough-bred stock in the colony of Victoria, and at latest advices had proved fatal to two colts and one filly.

DISEASE AMONG SWINE.—The mortality among swine in many parts of Holland during the past summer has been unusually great, owing to the prevalence of a disease of serious form, the exact nature of which has not been satisfactorily established. The *Wekelijksche Landbouw-Kroniak* states that at Drempt no less than 1500 swine fell victims to it, and in the commune of Steenderm the number of fatal cases considerably exceeded two thousand. The veterinary surgeons engaged are unanimous in declaring, that of all the various forms of medicinal treatment resorted to, not one appeared to exercise the slightest influence upon the course of the disease or its ultimate result.

A NEW REMEDY FOR HYDROPHOBIA.—From the *Journal of Applied Science* we learn that the monks of the Convent of Phanesomene, in the island of Salamine (Greece), have discovered a new remedy for Hydrophobia in the shape of a powder prepared from the root of *Marsdenia erecta*, by mixing it with equal parts of the powder of various species of *Mylabris*—allied to the ordinary blistering fly and having nearly the same properties. The remedy is administered internally to the person who has been bitten, the wound having been previously cauterized.

HORSEFLESH AS FOOD.—The horse was universally used for food by man before the historic period, and would be used now in Europe more generally than it is, were it not for the edict of the Church in the eighth century. During the Roman occupation of Britain it formed a large part of the diet of the inhabitants; by the Scandinavians it was eaten in honour of Odin. As Christianity prevailed over the heathen worship it was banished from the table. It appears, however, that it was used in this country as late as the year 787, after it had been prohibited in Eastern Europe. The ecclesiastical rule, moreover, was not always obeyed, for the monks of St. Gall, in Switzerland, not only ate horseflesh in the eleventh century, but returned thanks for it in a metrical grace, which has survived to our times on account of its elegance and beauty.—*Cassell's Natural History.*

RABIES AND HYDROPHOBIA.—The *Pall Mall Gazette* says that an impression widely prevails among certain classes in this country that the danger arising from the bite of a dog suspected of being mad can only be averted by the death of the animal; and dogs unaffected by Rabies are, no doubt, often destroyed in accordance with this theory, leaving the person or persons they may have bitten in a state of suspense as to the risk incurred of an attack of Hydrophobia. In Burmah, mad dogs and dogs supposed to be mad are not only killed, but eaten—the flesh of a mad dog being, in the opinion of the Burmese, not only the best antidote to the poison of the tooth, but a prophylactic against Hydrophobia. A crowd the other day, according to a Rangoon paper, were seen in the streets of that city hacking a dog to pieces and scrambling for the morsels, which, when secured, were taken home and fried and eaten by their fortunate possessors. The dog was rabid, and had bitten several persons, some of whom have since died. It was ultimately chased and clubbed to death, and those who devoured its remains flatter themselves that they are now Hydrophobia-proof for ever!

XUM

Correspondence, etc.

THE NEW VETERINARY (ARMY) WARRANT.

To the Editor of the VETERINARY JOURNAL.

SIR,—Permit me to offer a few remarks on that portion of the paper by "Ubique" that appeared in your journal for October, and which relates to the allowance for forage granted by the New Warrant for the Veterinary Department.

Can an allowance for forage be considered as forming part of the veterinary officer's pay? I think not: it is simply a money allowance to meet the expense incurred in the purchase of forage for the number of horses actually kept. If no horses are kept, the officer is not entitled to draw any forage allowance; therefore, even if "Ubique" were correct in assuming that the number of horses allowed in future will be one instead of two, no pecuniary loss would be sustained. It is true, the privilege of having a second horse foraged free would be lost to members of the Department; and this to most would be a great privation, although it is a very different matter to losing 1*s.* 10*d.* a day in money. But, Sir, let me ask, what authority has "Ubique" for his confident interpretation of the following clause in the New Warrant?—"Forage, or the pecuniary allowance in lieu thereof, shall be granted to an officer of the Veterinary Department for the number of horses necessarily kept by him for duty." He tells us this "will be made to mean *one* and no more." The War Office authorities confirmed recently, in an Army Circular, an allowance of two horses to each veterinary surgeon. Doubtless that number was considered necessary by them, and for that number veterinary officers who keep them are entitled to draw the allowance at present granted. Notwithstanding this fact, we find "Ubique" gives a table in which forage for *one* horse only is credited, and describes it as showing the "total daily pay and allowances as they are under the New Warrant." Nothing can be gained in favour of a good cause by overstating the case. If "Ubique" means that he would like the amount of the forage allowance in the form of pay, let him say so. I think no one should run ahead of the authorities, and ascribe motives which will admit of a forced interpretation being put upon the New Warrant, as "Ubique" appears to have done, in order that he might show a supposititious grievance. It appears a very short-sighted policy for members of a department to curtail their own allowances by anticipation. Let "Ubique" keep one horse only, if he finds one sufficient for his duty—perhaps he is fond of walking—but let him leave other officers two horses for the performance of their duties, as has been decided to be necessary by more competent authority.

I beg to remain,

Yours very faithfully,

"A."

THE ARMY VETERINARY DEPARTMENTAL WARRANTS.

To the Editor of the VETERINARY JOURNAL.

SIR,—The following extracts may be interesting to some of the readers of the *Veterinary Journal*. Veterinary surgeons were first appointed to the army on 1st January, 1797, six years after the first veterinary school (the

Veterinary College, London, founded in 1791) was established in this country. They received commissions as officers, with the relative rank of Lieutenant, for which they were charged the sum of £5 0*s.* 6*d.*, the assistant-surgeon of the same period being charged only £4 19*s.* 6*d.* The veterinary surgeons so appointed, after certain periods of service, received the following rates of pay :—

On appointment	8*s. per diem.*
After 3 years' service . .	10*s.* „
„ 10 „ „ . .	12*s.* „
„ 20 „ „ . .	15*s.* „

The Principal Veterinary Surgeon, appointed in 1806, received 9*s.* 6*d. per diem.*

The full pay of the veterinary surgeons remained at the rates given till 1853, when an increase of 2*s.* 6*d. per diem* was given after twenty-five years' service.

No further alteration occurred until 1859; and here we find that the relative ranks of Major and Captain were first given to the Department, with the daily rates of pay shown in the table :—

	Rank.	After 25 years.	After 20 years.	After 15 years.	After 10 years.	After 5 years.	On Appointment.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Staff Vet. Surgeon .	Major	23 0	22 0	—	—	—	21 0
Vet. Surgeon, 1st Class.	Capt.	20 0	17 0	15 6	14 6	—	12 6
Veterinary Surgeon .	Lieut.	—	—	14 0	13 0	11 6	10 0

For nineteen years the Veterinary Department continued on the rates of pay given in the above table.

On the 1st of May, 1878, a Royal Warrant was promulgated, under which the Department is at present serving. The improvements will be observed by the following table :—

	Rank.	After 30 years.	After 27 years.	After 25 years.	After 22 years.	After 17 years.	After 10 years.	After 5 years.	On Appointment.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Inspecting V. S. .	Major	30 0	—	27 0	—	—	—	—	25 0
1st Class V. S. .	Capt.	24 0	22 0	—	20 0	18 0	—	—	16 0
Vet. Surgeon .	Lieut.	—	—	—	—	—	14 6	12 0	10 0

The Principal Veterinary Surgeon receives £750 per annum.

From 1797, until June 1817, the veterinary surgeon received half-pay at the rate of 3*s.* 6*d. per diem* if placed on half-pay by the reduction of the establishment, or through ill-health; and he could claim a right to retire after thirty years' full-pay service on 12*s. per diem.*

In June, 1817, the following rates were allowed :—Under three years, 3*s.* 6*d.*; after three years, 4*s.* 6*d.*; after ten years, 5*s.* 6*d.*; after twenty years, 7*s.*; after thirty years, 12*s.*, with the right to retire after thirty years.

XUM

On the 1st of October, 1840, a circular was issued as follows :--

"Art. 39.—The rate of half-pay for a veterinary surgeon shall be regulated by his service on full-pay, according to the following scale :—After six years, 4*s.* 6*d. per diem;* after ten years, 5*s.* 6*d.;* after twenty years, 7*s.;* after twenty-five years, 8*s.;* after thirty years, 12*s.*

"Art. 40.—If a veterinary surgeon be reduced before he has completed six years' service on full-pay, he shall be allowed only a temporary half-pay of 3*s.* 6*d. per diem* for three years, and be subject, of course, to a recall during that period.

"Art. 41.—Every veterinary surgeon who may have served upon full-pay for twenty-five years and upwards. or who may have served for twenty years provided he have passed five years on foreign stations, shall have a right to retire on half-pay at the rates assigned to those periods of service in Art. 39."

On the 6th of October, 1854, another Royal Warrant appeared as follows :—

"Art. 71. Rates of Half-pay.—The half-pay to be granted to a veterinary surgeon shall be regulated by his service on full-pay, according to the following scale :—In case of reduction before he has completed five years' service on full-pay, he shall be entitled to temporary half-pay at 3*s.* 6*d. per diem* for three years only, and be subject, of course, to a recall to employment during that period. Above five years as veterinary surgeon, 5*s. per diem;* above ten years, 6*s.;* above fifteen years, 7*s.;* above twenty years, 8*s.;* above twenty-five years, 10*s.;* above thirty years, 12*s.*

"Art. 72. Right to retire on Half-pay.—Every veterinary surgeon who shall have served on full-pay for twenty-five years and upwards, or who has served for twenty years provided he have passed five years on foreign stations, shall have a right to retire on half-pay at the rates assigned to those periods of service in Art. 71.

"But no veterinary surgeon shall be entitled to claim retirement after any period of service under twenty-five years' duration, upon the ground of ill-health contracted in the service, unless such unfitness be supported by medical certificates satisfactory to our Commander-in-Chief and Secretary-at-War."

The following table shows the daily rates of half-pay given under the Warrant of 1st July, 1859 :—

	Rank.	After 25 years.	After 20 years.	After 15 years.	After 10 years.	After 5 years.	After 3 years.	Under 3 years.
		s. *d.*	*s.* *d.*		*s.* *d.*	*s.* *d.*	*s.* *d.*	
Staff Vet. Surgeon	Major	15 0	14 0	Half-pay of former rank	—	—	—	Temporary for the time served on full pay, 4*s.*
1st Class ditto .	Capt.	13 6	11 6	10 6	9 6	Half-pay of former rank		
Vet. Surgeon .	Lieut.	10 0	,,	9 6	8 6	7 0	4 0	

The 1859 Warrant cancelled "the right to retire at twenty years on the condition of having served abroad for five years," given by the Warrant of 1840; and the veterinary surgeon could not after its promulgation claim to retire till his twenty-fifth year of full-pay service was completed.

The Warrant promulgated in May, 1878, gives the following daily rates of half-pay :—

(P. V. S. £500 per annum.)	Rank.	After 30 years.	After 25 years.	After 20 years.	After 15 years.	After 10 years.	After 5 years.
		s. d.	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
Inspecting V. S. . .	Major	21 0	19 0	17 6	—	—	—
1st Class V. S. . .	Capt.	—	16 0	13 0	10 6	—	—
Vet. Surgeon . .	Lieut.	—	—	—	9 6	8 6	7 0

This Warrant provides that the veterinary surgeon may retire after twenty years on half the rate of full-pay he may be in receipt of at the time of retirement, or after twenty-five years on seven-tenths of the rate he may be in receipt of at the time of retirement.

Yours obediently,
"AB ORIGINE."

THE TITLE OF VETERINARY SURGEON.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—I read your editorial on the above subject in your October issue with great pleasure, and I am sure the thanks of the profession generally are due to you for the outspoken and able manner in which you have treated the question. There cannot be two opinions as to the necessity there exists for the profession to manifest a disposition to rescue itself from the disabilities under which it at present labours. For my part, individually, I tender you my warmest thanks for the interest you are ever ready to show, on this and kindred subjects. I can cordially endorse all your views and arguments to the letter, inasmuch as they do but confirm my own, as indicated in the action I took at the last November meeting of the Yorkshire Veterinary Medical Society; which action my own personal experience, in the misconstruction and disparagement of myself, my motive and object, from professional and empirical critics, only made more clear the need there was for an independent and fearless handling of the question.

Your article speaks about the Body Corporate being responsible for professional competency, and also, to some extent, for the moral conduct of its graduates; and, as a proof of this, you mention a fact which was to me before unknown—viz., that the Supplementary Charter recently obtained gives to the Body Corporate the power to remove from its register any member who it may consider has conducted himself in such an improper manner as to merit that punishment. Now this is, undoubtedly, a step in the right direction; and I should like to know what constitutes misconduct as understood under the Supplementary Charter. Does it apply only to the moral behaviour of a member? or does it go further, and say that the power shall be exercised (of course, after due consideration) towards any member who has in any other way brought discredit and disgrace upon the profession? That is to say, in plain words, would it tolerate a professional man consulting with a charlatan?—for that is an intolerable nuisance amongst others which have to be attacked, and one that demands administrative repression.

I am glad to see that the only obstacle in the way is removed for obtaining the Protective Act, which should have been in existence from the first. Of course funds will be needed to obtain the Act, and I do not think there will be any difficulty in procuring them. My subscription will be forthcoming when I know to whom to send it, and what are the requirements of the case.

Yours very truly,

PARLANE WALKER.

Halifax, *October*, 1878.

A CORRECTION.

To the Editor of the VETERINARY JOURNAL.

SIR,—At page 27 of the *Journal* for July, the word Bombay being substituted, by inadvertence no doubt, for Bengal, may mislead those who do not know that general orders to the Bombay army are published at Poona, and only those for the Bengal army at Simla. Moreover, the order quoted by you was not published in the *Gazette of India* of January 29th, 1878, for there was no *Gazette of India* published on that day. It appeared in the "Bengal General Standing Orders" of that date.

I am, sir, yours faithfully,

W. LAMB,

Inspecting Veterinary Surgeon, Bombay Army.

Poona, *August 22nd*, 1878.

NON-PROFESSIONAL ADVERTISING.

To the Editor of the VETERINARY JOURNAL.

SIR,—I send you the enclosed, which was handed to me to-day by mistake. Being somewhat amused by the unique way in which the "circular" (if it may be termed so) is put together, I thought it would serve as a sample of the still few there are circulated in this county.

"E. PORTER, HILGAY,

BEGS respectfully to inform the public that he has taken the business carried on for over 50 years by Mr. R. WHITTEN (who has removed), and also to state that he is enabled by the receipts of Mr. Whitten to supply the celebrated GANGRENE OILS, GREASE BALLS, COW DRINKS, CURE FOR ULCERS, CURE FOR FELTRICK, &c., prepared with precisely the same ingredients as those used by him.

Your esteemed orders will oblige."

The person who undertakes to cure Ulcers, Feltrick, etc., I believe to be an ex-shoemaker. At the back of his circular you will possibly notice an elaborate specimen of his caligraphy. True, "there is nothing like leather."

I am sir,

Very sincerely yours,

WM. FRANK SMITH, Student R.V.C.

Downham Market, Norfolk, *September 23rd*, 1878.

PROFESSIONAL ADVERTISING.

To the Editor of the VETERINARY JOURNAL.

SIR,—It is to be feared that the struggle to achieve publicity, or perhaps notoriety, drives some people to adopt devices which, whether they are successful or not in promoting the interests of the individuals resorting to them, often inflict injury upon the class or profession to which they belong. I leave it to your numerous readers to decide whether the following advertisement, cut from the *Daily Telegraph* recently, is calculated to do the veterinary profession any credit, if the advertiser really does belong to it :—

"PLEASE CUT THIS OUT.—Mr. ARCHER, Veterinary Surgeon, West-end-lane, Kilburn, ATTENDS TATTERSALL'S Saturdays and Mondays to select horses for clients. Other sales by appointment. Examinations, 10*s.* 6*d.*; two, 16*s.*; three, 21*s.* Write requirements. Horses insured. Pupil vacancy."

Would it not be well if the gentleman who seeks publicity and patronage in this very objectionable manner, cut himself out a more becoming line of conduct? That is, if he is an M.R.C.V.S.

Yours very obediently,

"DIGNITY."

PROFESSIONAL PARASITES.

To the Editor of the VETERINARY JOURNAL.

SIR,—In reviewing "Every Man his own Horse Doctor," in the *Veterinary Journal* for February last, you said: "We were hoping that the day had almost gone by when members of the veterinary profession would employ themselves in promoting quackery and empiricism, and doing injury to valuable animals, by writing books which profess to give every man a knowledge of how to treat diseases and perform operations on the domesticated animals. It is true that certain agricultural and sporting papers have a 'veterinary' editor, or, as an American paper has it, a 'horse-doctor,' on their staff, who gives advice free, and prescribes for injuries, derangements and maladies which he has not seen, and which may then be under the treatment of some qualified member of the veterinary profession: the owner being desirous of knowing from the learned editor whether such treatment is right. We need scarcely say that we think it undignified and unworthy the position of veterinary surgeons to act in this manner."

It was hoped that your remarks would have attracted more notice from veterinary surgeons, and especially as two of the most flagrant offenders against professional ethics are to be found expressing their opinions in such respectable journals as the *Field* and the *North British Agriculturist*. The former paper is fond of giving short accounts of the most prevalent diseases in a popular form, and also briefly answering queries about animal—chiefly canine—diseases. Perhaps it does not do very much harm to veterinary surgeons; yet is the practice none the less reprehensible on that account, for it may occasionally do much injury to individual members of the profession.

The *North British Agriculturist*, however, makes much more of the subject of this complaint; and in order to call attention to what is now considered a great abuse, a short selection is here given from recent numbers of that paper, to show what sort of afflictions are borne in silence by Scotch

veterinary surgeons, who seem to be a very long-suffering, humble-minded, and forgiving body, or they would years ago have effectually protested against what cannot but be regarded as a gross breach of professional etiquette.

The short articles in the *North British Agriculturist* appear under the heading of "Veterinarian," and are usually signed "Vet. Ed."—presumably an abbreviation for "Veterinary Editor"; so we may infer that the writer is a veterinary surgeon. It will be observed that he follows the American newspaper plan, of employing an attractive and somewhat sensational heading; and the following specimens will give an idea of the peculiar style and the scientific information considered suitable for those who apply for his assistance. In the issue for September 25th, 1878, appears this paragraph :—

"A HARD SWELLING ON A HORSE'S CHEST.—I should feel obliged by your informing me through your valuable paper with regard to a horse which has lately had a hard lump on his breast about the size of a hen's egg. It is very hard, and he does not flinch when pinched ever so hard.—CARMARTHEN.—[It is sometimes advisable to let sleeping dogs lie. If the swelling causes no inconvenience, it is probably as well to leave it alone. If it interferes with the horse's action, and is a cartilaginous tumour, as it appears to be from your description, your veterinarian will probably make an incision round its base, dissect back the overlying skin, remove the tumour, close the wound with a few stitches, and dress with cold water and diluted carbolic acid. A recently appearing diffused swelling, the result of a bruise or blow, contains exudate, is at first painful and tender, should be poulticed or fomented, so as to favour suppuration, and when it softens may require to be opened.—VET. ED.]"

It will be seen that the unfortunate professional attendant is liberally treated to advice, and we can only try to imagine his feelings, if he has omitted any of the "Vet. Ed.'s" remedies, when the paper is flourished in his face by the owner of the animal.

In the same paper for October 2nd, 1878, on p. 647, is the following :—

"AN ITCHY CART-HORSE.—Will you kindly help me to cure the itching of one of my work-horses? These last three years, after the turnips were sown and the horse put to grass in the month of June, he began rubbing, and continued till he had the hair off his mane and tail. This year he is much worse, and even just now he is still at it, and has the skin broken in some places. Our local veterinarian gave him some powders a year ago, but they did no good, and now he puts it down as incurable, and declines to prescribe. I shall be glad if you will send me instructions as to treatment, diet, etc., which will be carefully attended to.—NORTH COUNTRYMAN.—[Your horse has not true Itch, which depends, like Scab, on a parasite burrowing in the skin, but a form of Eczema, now contagious, and resulting from some faulty state of the digestive organs and blood. It is more common in summer than winter; is often produced by change of food; and, as in your case, is apt to recur with each recurring year. Minute itching blisters or vesicles will be found about the mane and tail, and the animal rubs until the skin is broken. The proper treatment consists in a dose of aloes; avoidance of the green food, meal, seeds, or other diet which excites the complaint; a piece of whiting should be placed as an antacid for the horse to lick; an abundant supply of pure water is essential,—a deficient water supply often producing and always aggravating such cases. If relief is not thus afforded, your veterinarian will find it desirable to prescribe arsenic, of which three or four grains are given daily, dissolved with two ounces of car-

bonate of potash in half a pint of water. The irritable broken skin may be soothed by zinc oxide ointment, mercury nitrate ointment, or a lotion made by dissolving an ounce of sugar of lead in a pint of linseed oil.—VET. ED.]"

The sentence beginning "If relief is not afforded your veterinarian will find it desirable to prescribe arsenic, etc.," is very rich, and no doubt the "veterinarian" in question felt particularly obliged for these very public suggestions.

The above are only two specimens from very many; and fear of trespassing too much on your space prevents the quotation of numerous equally, or even more, entertaining selections. These things would be amusing if they were not very lamentable; and as they appear week after week, it is to be supposed that veterinary surgeons are at a discount in Scotland, although she possesses three veterinary colleges. They may reply that the questioner is not likely, in many cases, to be much enlightened by the answers he receives; but, at the same time, are they not entitled to complain in the strongest manner? Of course, every man has a right to employ his talents in his own way, *so long as he does no injury* to other people; but, in addition, it has always been considered an axiom in professions that there is such a thing as *professional etiquette.*

We do not see medical men of any standing or consideration treating particular cases through the columns of public journals; and doubtless we should find that any one who sought by such an expedient to obtain either money or notoriety, would be ostracized by his professional brethren, and would be disagreeably and constantly reminded of their disapprobation of his proceedings. Medical men are especially severe on the advertising "consultation by letter" gentry, now happily few and far between.

Why should not veterinary surgeons also show by every legitimate means their censure of those who may injure their profession? If the professors of the different colleges would sternly set their faces against honourable recognition of those who act in any way calculated to harm their brethren; and if they would in their lectures diligently impress on the students the great importance of discouraging any professional parasites who directly or indirectly foster quackery, they would confer a great service. To do so may be fairly said to be part of their duty; and it may be asked, Do they devote any special lectures to the subject of professional etiquette? If the answer be No, is not such a grave omission most extraordinary, and is not reform urgently required? It is earnestly to be desired that even the suspicion of such neglect should no longer be entertained, for it is often wisely said that the inculcation of correct ideas of professional etiquette is far too much overlooked at our veterinary colleges, and that improvement is very much wanted in this direction. Let us hope that a beginning may, without further delay, be made in what is of such great importance to the future veterinary surgeon.

Yours faithfully,
"JUSTITIA."

AN EARNEST APPEAL.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—Will you permit me, through the medium of your columns, to direct the attention of the veterinary profession to a case which is well worthy of their sympathy?

Mr. C. S. Hurst, of Barnet, Middlesex, died suddenly on September 24th. He was a member of our profession, having obtained his diploma in 1859, and was very much respected by all with whom he came in contact. It appears he had not long obtained his diploma when he was thrown out of a carriage and broke his left arm; from the effects of this accident he had barely recovered, when he dislocated both wrists, and subsequently broke the left wrist. About five or six years ago he stumbled and fell when coming home one dark night, and it was found upon examination that his right arm was broken. Some weeks later it was discovered that his right shoulder was dislocated, and in returning this to its place the recently set arm was seriously affected. Paralysis of the fingers of the right hand was the result of this accident, which rendered them useless; and from this period to the time of his death he suffered severely from internal pains. Four months before his death he was kicked in the abdomen by a horse he was attending, which caused paralysis of the bowels, and his life was despaired of; he however recovered sufficiently to enable him to attend to his business. He then had a relapse, and died suddenly on the 24th ult.

After meeting with the accident causing paralysis of the fingers, the deceased gentleman was unable to perform any operations; and his son, who had already been brought up to the profession, acted under his father's instruction to the time of his death, and has thus kept the practice together. But he is now left without any means by which he can attend college, in order to obtain his diploma; and, in addition, there is Mrs. Hurst, who has four more children to maintain.

I understand that an effort will be made to raise funds in the immediate district in which he resides to enable him to obtain his diploma. Considering that his father was a member of the profession, I think we also should assist the son to the best of our ability. I do not personally know Mr. Hurst, but feel that it is a matter concerning us all. I shall be pleased to contribute 10*s.* 6*d.* to open the subscription, although I trust I shall be a long way from heading the list. A local treasurer will be appointed, who will forward his address to your *Journal*. Until then I have no doubt that you will be pleased to acknowledge and forward to the treasurer any sums that may be sent you.

I remain, yours truly,
L. C. TIPPER, M.R.C.V.S.

P.S.—Would it not be a gracious act on the part of the Governors of the Royal Veterinary College to grant a free admission to their college?

Balsall Heath, Birmingham, *September 27th*, 1878.

[We shall gladly receive any sums forwarded to us with the above laudable object, and transmit them to the secretary. Is this not a good case for the Veterinary Benevolent Fund, which is so well worthy of support by the profession?—ED. *V. J.*]

OUR FEES.

To the Editor of the VETERINARY JOURNAL.

SIR,—Your correspondent "Artemus Secundus," in broaching the above subject, expresses a hope that through your assistance and that of the medical associations, a scale of fees may emanate, so that all members of the profession may be uniform in their charges. That his hopes will never be realized is quite certain. The idea savours too much of the "trades-union"

business, and a moment's reflection will show the impossibility of carrying it out. But supposing it really were possible to obtain a uniform scale of fees, and "bring the body together on a friendly footing," it is hardly likely the profession would so far forget itself as to combine for any such purpose, as it is not in the habit of combining to look after its own welfare. Regarding fees on the mileage scale, I think one shilling is little enough, although a great deal depends on the wealth of a neighbourhood; but on the whole I think fees should be based on the time occupied. Many people send for a veterinary surgeon to see—say a dog—and produce three or four more; then comes a long history of the lot,—of course they are the most intelligent dogs that ever lived. You are told all about their funny ways: how one won't take milk, another has a liking for tea, a third, you find, has a decided taste for blacking, and has spoiled the polish on your boots, and ever so gentle a kick given to the delinquent would cost you the loss of a client. You smile and try to feel amused, when a glance at the clock reminds you that an hour has sped, and home is three miles away.—Fee, eighteenpence. *That*, certainly, is not fair; and I think those who take up so much of a professional man's time ought to pay accordingly.

I have repeatedly noticed that your provincial correspondents, in treating of quacks and such-like subjects, seem to be under the impression that quacks only exist in the country. "Artemus Secundus," in alluding to "the more favoured practitioners of large towns and cities, etc.," implies the same thing. Allow me to disabuse his mind on that point. In the Metropolitan district, at least eighty per cent. of the master farriers pretend to a knowledge of the veterinary art, and practise accordingly, and of course there are quacks of other "denominations." One I may mention is a "dog doctor," who, when he cannot effect a cure, tells the unfortunate possessor that the dog is sure to go mad, and that he had better take it with him and give it some prussic acid; and thereby hangs a tale which I need not stop to unfold. Of course we cannot stop quackery, but I hope before long we shall be able to prevent the assumption of our title.

Well, now, in London we have not only to compete with these people, but we have a source of competition which is happily spared our favoured brethren in the country—viz., *The Royal Veterinary College.*

"Artemus Secundus" thinks the fee for examination as to soundness should be twenty-one shillings. So do I; but at the Royal Veterinary College it only costs a matter of *two shillings*, and a large horse-dealer told me not long ago that it cost him about *sixpence* each horse.

Pray what veterinary surgeon can afford to treat a horse and charge only for its keep? According to the advertisements of this establishment, the Professors do not visit patients outside the institution, except under special circumstances; but many members of the profession know how much truth there is in that statement. I know a farrier who told me that, when in a fix, he went to the College and got Professor So-and-so to go with him to see his patients: and I have not the least reason to doubt the truth of his statement.

At one of the opening lectures a year or two ago, I heard some glib talk about "honest competition." Honest, forsooth! What a parody on the word! Is it honest to take a man's money to teach him a profession, and then deprive him of a living by underselling him? I once heard one of the Governors say that the College had a very large income. If so, where does it go? Who gets it? As it comes indirectly out of the pockets of members of the profession, it seems to me we have a sort of right to be enlightened on the subject. None of it ever goes to benefit the profession; none to the College Building Fund, the Benevolent Fund, or anything of that kind. There is a sort of mystery and secrecy about the place; or else why was the first Annual Meeting which was advertised in the daily papers held in secret,

and no reporters allowed? Is there something to be ashamed of? But I am wandering from the subject of "our fees." I may have something to say another time about our honest competitors. In the meantime, I hope I have said sufficient to show Mr. "Artemus Secundus" that we are not so highly favoured as he supposes, and I hope he will never have to compete with professors who examine horses for two shillings. In no other profession would such a state of things be tolerated, and such a disgrace to ours should have been swept away long ago.

I am, etc.,
THOMAS MOORE, M.R.C.V.S.

TO CORRESPONDENTS.

INQUIRER.—A Member of the Royal College of Veterinary Surgeons must have been five years in practice as such, before he can present himself for the Fellowship Degree. The nature of the educational examination for the Degree has not yet been decided upon, but as a committee was appointed to report upon the subject at the last Council meeting, this will probably be settled before long, and then we shall be able to inform you.

AN INTENDING STUDENT.—We would earnestly recommend yon to become a pupil for two or three years with a good and intelligent practitioner, who would take sufficient pains with you, if you have not seen any practice. There is but little time or opportunity to acquire practical knowledge while at College, and without this no one can embark successfully in the veterinary profession.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. Nunn, Jullundur, Punjāb, India; H. Lamb, Poona, India; F. Smith, Lucknow, India; W. F. Smith, Downham Market, Norfolk; G. A. Banham, Cambridge; L. C. Tipper, Birmingham; R. Ward, London; "A"; H. Ferguson, Dublin; J. A. Clarke, March; "Inquirer;" Professor Walley, Edinburgh; J. Lambert, 17th Lancers, Hounslow; A. J. Owles, Inspecting Veterinary Surgeon, Dublin; P. Walker, Halifax; G. Morgan, Liverpool; "Ab Origine"; R. S. Laws, Toulouse, France; T. Moore, London; "Justitia;" W. Masters, Royal Horse Artillery.

BOOKS AND PAMPHLETS: *H. V. Stockfleth and C. Steffen*, Handbuch der Thierärztlichen Chirurgie; *R. V. Tuson*, On the Volumetric Estimation of Mercury; *C. Reade*, A Torture Cellar at Vauxhall; The Animals (Ireland) Order of 1878.

JOURNALS, ETC.: *Recueil de Méd. Vétérinaire; Annales de Méd. Vétérinaire de Bruxelles; Thierarzt; Revue Vétérinaire; Archives Vétérinaires; Oesterreichische Vierteljahresschrift für Wissenschaftliche Veterinürkunde; Students' Journal; Mark Lane Express; Wochenschrift für Thierheilkunde; Farmer; National Live Stock Journal; Archivio di Medicina Veterinaria; Agricultural Gazette; Dublin Journal of Medical Science; Il Medico Veterinario; Practitioner; Edinburgh Medical Journal; American Veterinary Review; Der Thierarzt; Animal World; Live Stock Journal; Lancet; Land and Water; Nature.*

NEWSPAPERS: *Referee; Melbourne Age* (two copies); *Melbourne Argus; Melbourne Daily Telegraph; Australasian; South Australian Register; Midland Counties Herald; Scotsman; Glasgow Courier; Irish Times; Wolverhampton Evening Express; Glasgow Herald; Broad Arrow; Army and Navy Gazette; Birmingham Daily Gazette; Examiner; Stirling Reporter; Manchester Evening Mail.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal" Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.

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